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sirona
The Dental Company

inLab SW

Operator's Manual
Software Version 4.2

English

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1 Introduction

1.1 Dear Customer,

Thank you for purchasing your inLab SW 4 software from Sirona.

In connection with inEos Blue / inLab MC XL, this software enables you to produce dental restorations, for example from ceramic material with a natural appearance.

Improper use and handling can create hazards and cause damage. Therefore, please read and carefully follow this manual and the relevant operating instructions. always keep them within easy reach.

In order to master the system safely, you should train on the exercise model using the described examples.

To prevent personal injury or material damage, it is important to observe all safety information.

To safeguard your warranty claims, please complete the attached **Installation Report / Warranty Passport** when the system is handed over and send it to the indicated fax number.

Your
inLab SW 4 Team

1.2 Copyright and trademark

Copyright

© Sirona Dental Systems GmbH. Alle Rechte vorbehalten.

The information contained in this manual may be changed without notice.

The software, including the associated documentation,is protected by copyright. You must therefore handle it in the same way as any other protected material.

Anyone who copies this software to any medium for any purpose other than his own personal use without the written permission of Sirona Dental Systems will be liable to prosecution.

Trademarks

Microsoft® and Windows 7® are registered trademarks.

Windows™ is a trademark of Microsoft Corporation.

All other trademarks are the property of their respective holders.

Notes on 3rd party code libraries must be stored in license.pdf in the installation directory.

2 General information

Please read this document completely and follow the instructions exactly. You should always keep it within reach.

Original language of the present document: German

2.1 General safety information

Only use original software

Only use original software or software which has been released by Sirona. To produce restorations, manipulated or non-released software components must not be used.

Software and software components must not be installed using incorrect data.

Please check that each installed component has been granted approval in its country. Contact your dealer for more information.

For the USA only

CAUTION: According to US Federal Law, this product may be sold only to or by instruction of physicians, dentists, or licensed professionals.

2.2 Accessories

In order to ensure product safety, this device may be operated only with original Sirona accessories or third-party accessories expressly approved by Sirona. The user assumes the risk of using non-approved accessories.

Available accessories

- Scanbodies for Bluecam S, REF 62 34 681
- Scanbodies for Bluecam L, REF 62 34 699
- Scanbodies for Omnicam S, REF 64 31 386
- Scanbodies for Omnicam L, REF 64 31 394
- ScanPost (Also observe the ScanPost Operating Instructions)

2.3 Structure of the manual

2.3.1 Identification of the danger levels

To prevent personal injury and material damage, please observe the warning and safety instructions provided in this document, which are highlighted as follows:

⚠ DANGER
Imminent danger that could result in serious bodily injury or death.

⚠ WARNING
Potentially dangerous situation that could result in serious bodily injury or death.

⚠ CAUTION
Potentially dangerous situation that could result in slight bodily injury.

NOTICE
Potentially harmful situation which could lead to damage of the product or an object in its environment.

IMPORTANT
Instructions for use and other important information.

Tip: Information for simplifying work.

2.3.2 Formats and symbols used

The formats and symbols used in this document have the following meaning:

✓ Prerequisite **1.** First action step **2.** Second action step or ➢ Alternative action ↳ Result	Requests you to do something.
See “Formats and symbols used [→ 13]”	Identifies a reference to another text passage and indicates the relevant page number.
• List	Identifies a list item.
"Command / menu item"	Identifies commands / menu items or a quote.

2.3.3 Conventions

Example	Meaning
Clicking	Single pressing and subsequent release of the left mouse button or the left trackball button on the acquisition unit
Double-clicking	Double pressing and release in quick succession of the left mouse button or left trackball button on the acquisition unit
Moving the mouse in one direction	On the acquisition unit: Moving the trackball in the corresponding direction.
Seizing a point	Pressing the left mouse button (left trackball button on the acquisition unit) and keeping it pressed.

Example	Meaning
For acquisitions with the CEREC Bluecam: Actuate foot switch	The same function as: Pressing the left trackball button on the acquisition unit or the left mouse button.
"Ctrl+N"	On the keyboard: Press the **Ctrl** and **N** keys simultaneously.
Drag & drop	(Drag & drop) Press and hold an element (e.g. pictograph), and drop onto new potential destination.

2.3.4 Formats of the manual

You can access the manual via the Help button or by pressing "F1".

The pdf-format user manual can be found on the supplied software DVD or on the Internet (http://www.sirona.com/manuals).

This format is page-oriented and is well suited for printing out the desired pages.

2.3.5 Odontogram used

The software can be adjusted to the international odontogram (FDI) or the USA odontogram (ADA) (Odontogram [→ 41]).

In this documentation teeth are named as follows:

Principle:	FDI	(#ADA)
Example:	13	(#6)

2.3.6 File format

You can assign one or more orders to any dentist in the software. Depending on the processing status, an order comprises multiple optical impressions, the virtual models reconstructed from them and one or more virtual restorations.

The software uses its own file format (*.lab) to export an order. This format contains all of the order data. LAB files can be opened with other inLab software installations. Under certain circumstances, older software versions cannot open data exports from a more recent version.

3 Getting started

3.1 Installing the software

The software requires the 2.00 firmware version of the license stick. Update the firmware version if necessary. For more information, refer to the section on License manager [→ 22].

NOTICE

Installation only with administrator rights

You must have administrator rights on the PC on which you want to install the software!

✓ Version 2.00 of the firmware is available.

✓ The PC is powered up and all programs are terminated.

1. Insert the DVD in the DVD drive.
   - The setup program starts automatically.
2. If this is not the case, run the *"Setup.exe"* file in the root directory of the DVD.
   - The installation wizard opens.
3. Click the *"OK"* button.
4. In the next dialog, click the *"Next"* button.
   - The license agreement is shown.
5. Read through the license agreement carefully.
6. If you accept the license agreement, then activate the *"I accept the terms in the license agreement"* option button and confirm your acceptance by clicking the *"Next"* button.
7. In the next dialog, click the *"Next"* button.
8. In the next dialog, click the *"Install"* button.
   - The program continues the installation routine. This may take several minutes.
9. Click the *"Finish"* button once installation is complete.
   - The software is installed.

3.2 Uninstalling the software

✓ The program is closed.

1. Click on "Start / All Programs / Sirona Dental Systems / inLab / Tools / Deinstallation" to uninstall the software.
   - During the uninstall procedure, you will be asked whether you want to delete the patient data or the entries in the registration database (e.g. the calibration data).
2. Depending on your decision, click either the *"Yes"* or *"No"* button.
   - The software is uninstalled.

3.3 Copy protection

The software can be started only when the USB license stick is plugged in. The USB license stick is included in the scope of supply of the units. If you require additional licenses, please contact your dealer.

Always keep the USB license stick near the unit.

All authorizations (milling, interface, software licenses) can be installed as electronic licenses on the USB license stick. You must enter a 25-digit license key for this purpose.
You will receive the license key along with the unit. Alternatively, you can order it separately from your dealer.

Following an update, you may require a new license that is not available on your USB license stick. For more information, refer to the section on License manager [→ 22].

3.4 Downloading the software

ServicePacks

To keep your software updated, regularly check whether new ServicePacks are available.

Visit the Sirona website at www.sirona.com. In the product area for digital dental care, you will find the download area with the products for inLab laboratory solutions.

You will also find a description of the improvements and enhancements made in the ServicePack.

Update

You have to pay for major software changes (upgrades), and these also require a license. If you do not have a new license, you can only work in the demo version.

Contact your dealer for information on how to obtain new licenses for an upgrade.

3.5 Starting the software

✓ The inLab SW software is installed. You will find the start icon on the desktop.

✓ The USB license stick is connected with a valid, current license.

➢ Double-click the inLab SW start icon.

or

➢ Click on "Start / All Programs / Sirona Dental Systems/ inLab / inLab SW 4".

↳ The software is started.

4 User interface

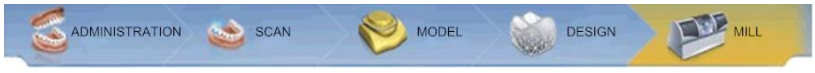
Overview of the user interface

A	Phase bar	E	Object bar
B	System menu	F	Image catalog (can only be activated in *"SCAN"* phase)
C	Page palette	G	Main window
D	Step menu	H	Tool wheel

I	Detailed representation of bridge / bar

4.1 Phase bar

The workflow is illustrated in the software in 5 phases.



Phase bar

- ADMINISTRATION
- SCAN
- MODEL
- DESIGN
- MILL

4.1.1 ADMINISTRATION

In this phase, you can perform the following:

- Create restorations and determine their type
- Define a milling unit
- Select material

4.1.2 SCAN

In this phase, you can perform the following:

- Acquisitions with inEos Blue
  - lower jaw,
  - upper jaw,
  - buccal bite registration
- View a 3D preview of the acquisitions
- Activate other image catalogs

If you have a CEREC license, you also can use the CEREC Bluecam or the CEREC Omnicam.

4.1.3 MODEL

In this phase, you can perform the following:

- Edit the model
- Carry out the buccal registration of the bite situation
- Align the models

- Trim models
- Draw in prep lines
- Define insertion axes
- Define restoration axes if necessary (abutments and telescopes only)
- Select the patient photo for Smile Design

4.1.4 DESIGN

In this phase, you can perform the following:

- Individually change restoration parameters
- Have initial restoration suggestions generated
- Rotate and position the restoration
- Form and process restorations

4.1.5 MILL

In this phase, you can perform the following for each restoration:

- Define a milling machine
- Define milling options (not possible for all materials)
- Determine the block size
- Check and adapt the positioning of the restoration in the block
- Define the sprue location of the restoration
- Start the milling process
- Export the restoration/model for the inLab Stack SW or as *.stl (additional license required)

4.2 Object bar

The buttons for restoration selection are located in the object bar.

Each restoration is represented by a tooth with the corresponding tooth number. You can switch back and forth between the teeth by clicking on the corresponding tooth symbol.

Active elements are highlighted in orange.

If restorations span multiple tooth positions or two objects per tooth position are selectable for multilayer, the object bar is extended downwards. You can change between different active elements in the extended area.

4.3 Tool wheel

The tool wheel makes the standard tools available in the MODEL and DESIGN phases in order to simplify access. The tools currently available vary depending on the current step.

1. Right-click in the workspace.
   ↳ The tool wheel opens.

2. Click with the right mouse button anywhere in the workspace.
   ↳ The tool wheel moves to the position of the mouse pointer.
3. Select a tool.
   ↳ The selected tool is available. The tool wheel closes automatically.

You also can close the tool by clicking in the workspace with the left mouse button.

4.4 Step menu

Each phase is divided into steps. They are shown in the step menu at the bottom edge of the screen. The step menu changes depending on which phase the current restoration is in.

This menu guides you through the process step-by-step.

The double arrow keys can be used to switch between steps and phases.

Mandatory steps

Mandatory steps are marked with a red or green bar.

Red bar:	The step has not yet been completed successfully.
Green bar:	The step has been completed successfully.

4.5 System menu

In the system menu, you can perform the following:

- Switch to the start window to start a new case
- Save case
- Save the case under a different name
- Import case
- Export case
- Call up App Center/start plug-ins
- Open license manager
- Configure hardware and software
- Change window mode
- Retrieve software information
- Close the software

Opening system menu

➢ Move the mouse cursor to the top of the window.

or

➢ Click on the system menu button.

↳ The system menu is displayed.

Closing system menu

➢ Click on the system menu button.

or

➢ Click into the main window with the left mouse button.

↳ The system menu is closed.

4.5.1 Save case

In this dialog, you can save the actual case.

➢ Select *"Save Case"* in the system menu.

↳ The current processing status of the case is saved.

Tip: The procedure for saving individual restorations or exporting them for the stack software is described in the section Exporting a restoration [→ 105] .

4.5.2 Save the case under a different name

This dialog allows you to save the current case under a new name or assign it to a different patient.

1. Select *"Save Case As..."* in the system menu.
   ↳ The patient list is opened.
2. Select the appropriate patient.

or

   ➢ Create a new patient via *"Add New Patient"*.

4.5.3 Import case

✓ The LAB file (or older CDT file) is stored on the inLab 4 PC or on a storage medium connected to it.

1. Click the *"Import Case..."* button in the system menu.
   ↳ The *"Import Case..."* dialog box opens.
2. Select the folder where the case is located.
3. Select the relevant file.
4. Click the *"Open"* button

↳ The case is then imported and opened.
Depending on the type of restoration, only the optical impression is opened.

4.5.4 Export case

You can store a case in any location.

✓ You have opened a case in the software.

1. Click the *"Export Case..."* button in the system menu.
   ↳ The *"Export Case..."* dialog box opens.
2. Select the target folder to which you want to export the case.
3. Assign any name to the case.
4. Click on the *"Save"* button.

↳ The case is exported as an LAB file.

If you would like to transfer the optical impression to another PC, you can use a USB stick or a network drive for this purpose.

4.5.5 License manager

The license manager is used for the installation of new software licenses on the USB license stick. To do this, start the license manager via the system menu and follow the instructions on the screen. Keep the license certificate with 25-digit license key ready, which you either obtained with the unit or ordered separately from your dealer.

Tip: You can also start the license manager via "Start / All Programs / Sirona Dental Systems / inLab / Tools / License Manager".

To activate the license you must have an Internet connection and the USB license stick must be connected.

Licenses and code libraries

For information on licenses and code libraries from third parties, see licenses.pdf. The file is in the installation directory under "C:/Programs/Sirona Dental Systems/CADCAM".

4.5.6 Configuration

The configuration is described in the chapter "Configuration [→ 26]".

4.5.7 Window mode

The *"Window Mode"* function can be used to exit full-screen mode or enter it again.

4.5.8 Current program version

The *"About"* function contains information about the current program version.

4.5.9 Closing the software

The *"Exit"* function can be used to close the software.

4.6 Start window

In the start window, you can perform the following:

- Create or select an order
- Edit order data
- Search for an order
- Open cases
- Delete cases
- Add cases

Switching to the start view

You can switch to the start view at any time.

1. Open the system menu.
2. Click on the *"Start Screen"* button.

4.6.1 Creating a new order

In the data structure, orders are uniquely identified by one of the following two entries:

- Name of the dentist and name of the patient
  or
- Name of the dentist and order number

Add order

1. If the dentist concerned has already been created, click on the dentist.
2. Click on the *"Add New Order"* button.
   ↳ A job order card opens. The name of the dentist that you preselected is then suggested.
3. Enter the name of the dentist and the name of the patient.

or

   ➢ Enter the name of the dentist and the order number.

   ↳ Once you have entered enough information, the bar in the *"Edit Order"* step turns from red to green.

4. Click on the *"Add New Case"* button.
   ↳ The program switches over to the *"ADMINISTRATION"* phase.

4.6.2 Edit order data

4.6.2.1 Edit job order card

✓ You have found the order in the overview.

1. Click the job order card.
2. Click on the *"Edit Order"* step in the step menu.
   ↳ The job order card is opened for editing.
3. Carry out the changes.
4. Confirm your changes by clicking the *"Ok"* button.
   ↳ The changes are saved in the memory.
5. Click the double arrow on the left side of the step menu.
   ↳ The overview is displayed.

4.6.2.2 Remove order

✓ You have found the order in the overview.

1. Click on the case you would like to remove.
2. Click on the *"Delete Order"* step in the step menu.
3. Confirm the deletion by clicking the *"Ok"* button.
   ↳ The order is deleted.

4.6.2.3 Deleting a case

✓ You have found the associated order in the overview.

1. Click on the order.
2. Select the case.
3. Click on the *"Delete Case"* step in the step menu.
4. Confirm the deletion by clicking the *"Ok"* button.
   ↳ The case is deleted.

4.6.2.4 Opening a case

✓ You have found the associated order in the overview.

1. Click on the order.
2. Select the case.
3. Click on the *"Open Case"* step in the step menu.
   ↳ The restoration is opened.

4.6.2.5 Adding a new case

✓ You have found the associated order in the overview.

1. Click on the order.
2. Click on the *"Add New Case"* step in the step menu.
   ↳ The program switches over to the *"ADMINISTRATION"* phase.

5 Configuration

The *"Configuration"* menu contains five sub-menus:

- Parameters
- Devices
- Options
- Settings
- Apps

5.1 Parameters

The *"Parameters"* menu is structured by restoration type. You can make the settings for each of the following restoration types.

The changes in the values are displayed graphically.

Changed parameter settings are accepted for all initial suggestions here.

Tip: If you want to change the parameter values only for one restoration, do this in the DESIGN phase in the step *"Restoration Parameters"*.

Crown, inlay, onlay and veneer

Parameters	Description	Default value		
		Crown	Inlay/ Onlay	Veneer
Spacer	• Possibility for setting the space for the fastening material below the restoration. Acts up to the preparation margin.	80 µm	80 µm	80 µm
Marginal Adhesive Gap	• Adjust width of space on preparation margin. • The value of the adhesive gap cannot exceed the spacer value.	-	60 µm	-
Veneer Thickness	• Set to minimum thickness. • The software tries not to fall below this thickness when calculating the restoration suggestions. • DESIGN and MILLphases: The value is displayed as a semitransparent geometry on the preparation. Areas where the thickness falls short of the minimum level in the design phase are thus made visible.	-	-	500 µm
Occlusal Milling Offset	• Apply or remove material in the occlusal direction over the entire occlusal surface. • This value concerns only the milling result. • DESIGN and MILL phases: The effects are not visible.	0 µm	0 µm	0 µm
Proximal Contacts Strength	• Set the thickness of the approximal contacts. • The software tries to achieve this stored thickness in the restoration suggestions.	25 µm	2 µm	-

Parameters	Description	Default value		
		Crown	Inlay/ Onlay	Veneer
Occlusal Contacts Strength	• Set the thickness of the occlusal contacts. • The software tries to achieve this stored thickness in the restoration suggestions.	25 µm	2 µm	-
Minimal Thickness (Radial)	• Set the minimum wall thickness in the horizontal direction. • The software tries not to fall below this thickness when calculating the restoration suggestions. • DESIGN and MILL phases: The value is displayed on the preparation as a semitransparent geometry together with the minimum occlusal thickness and the instrument geometry setting. Areas where the thickness falls short of the minimum level in the design phase are thus made visible. • Observe the material manufacturer's recommendations when setting the minimum thickness. • Can be switched on and off	500 µm ON	500 µm ON	-
Minimal Thickness (Occlusal)	• Set the minimum wall thickness in the occlusal direction. • The software tries not to fall below this thickness when calculating the restoration suggestions. • DESIGN and MILL phases: The value is displayed on the preparation as a semitransparent geometry together with the minimum radial thickness and the instrument geometry setting. Areas where the thickness falls short of the minimum level in the design phase are thus made visible. • Observe the material manufacturer's recommendations when setting the minimum thickness. • Can be switched on and off	700 µm ON	700 µm ON	-
Margin Thickness	• Reinforce restoration margins with additional material. – Simplifies handling of the restoration – Prevents splitting of the material • The additional material can be milled off manually before inserting the restoration. • Can be switched on and off	50 µm ON	50 µm ON	50 µm ON

Parameters	Description	Default value		
		Crown	Inlay/ Onlay	Veneer
Regard Instrument Geometry	Considers the instrument geometry in the bottom of the restoration. Areas of the preparation that are smaller than the diameter of the instrument geometry are calculated in the bottom of the restoration so that they increase with the instrument geometry.	YES	YES	YES
Remove Undercuts	Undercuts within the preparation margin are blocked out in the restoration bottom.	YES	YES	YES

Abutment (anatomical, framework, lower layer)

Parameters	Description	Default value		
		Anatomical	Framework	Lower layer
Proximal Contacts Strength	• Determines the thickness of a contact in the mesial or distal direction.	25µm	-	-
Occlusal Contacts Strength	• Determines the thickness of a contact in the occlusal direction (to the antagonist).	25µm	-	-
Minimal Thickness (Radial)	• Determines the minimum radial wall thickness of the abutment. Minimum amount of material required around the adhesive base to produce a stable abutment. • Can be switched on and off	500µm ON	500µm ON	500µm ON
Minimal Thickness (Occlusal)	• Determines the minimum occlusal wall thickness of the abutment. Minimum amount of material required around the adhesive base to produce a stable abutment. • Can be switched on and off	700µm ON	700µm ON	700µm ON
Gingival Placement Pressure	• Determines how strongly the initial suggestion for the abutment penetrates the gingiva in order to build up pressure on the gingiva.	0µm	0µm	-
Gingival Depth	• Determines how far below or above the preparation margin the gingiva lies in reference to the gingival line.	0µm	0µm	-
Shoulder Width	• Width of the shoulder of an abutment or telescope.	-	1000µm	1000µm
Telescope Angle	• Telescope angle of an abutment or telescope.	-	4°	4°

Crown (framework, telescope)

Parameters	Description	Default value	
		Framework	Telescope
Spacer	• Possibility for setting the space for the fastening material below the restoration. Acts up to the preparation margin.	80 µm	80 µm
Minimal Thickness (Radial)	• Set the minimum wall thickness in the horizontal direction. • The value determines the radial wall thickness of the crown cap. • DESIGN and MILL phases: The value is displayed on the preparation as a semitransparent geometry together with the minimum occlusal thickness and the instrument geometry setting. Areas where the thickness falls short of the minimum level in the design phase are thus made visible. • Can be switched on and off	500 µm ON	500 µm ON
Minimal Thickness (Occlusal)	• Set the minimum wall thickness in the occlusal direction. • The value determines the occlusal wall thickness of the crown cap. • DESIGN and MILL phases: The value is displayed on the preparation as a semitransparent geometry together with the minimum radial thickness and the instrument geometry setting. Areas where the thickness falls short of the minimum level in the design phase are thus made visible. • Can be switched on and off	700 µm ON	700 µm ON
Margin Thickness	• Reinforce restoration margins with additional material. – Simplifies handling of the restoration – Prevents splitting of the material • The additional material can be milled off manually before inserting the restoration. • Can be switched on and off	50 µm ON	50 µm ON
Telescope Angle	• Angle by which the outer wall of the telescope cone is inclined inward in relation to the restoration axis.	-	4°
Telescope Height	• Initial height of the outer wall of the telescope cone from the cervical shoulder to the junction to the occlusal surface. • It influences the size of the friction surface.	-	3000 µm

Parameters	Description	Default value	
		Framework	Telescope
Occlusal Shoulder Width	• Width of the occlusal shoulder at the junction between the outer wall of the telescope cone and the occlusal surface. • The occlusal shoulder is inclined inward 45° in relation to the telescope axis.	-	300 µm
Regard Instrument Geometry	• Considers the instrument geometry in the bottom of the restoration. • Areas of the preparation that are smaller than the diameter of the instrument geometry are calculated in the bottom of the restoration so that they increase with the instrument geometry.	YES	YES
Remove Undercuts	• Undercuts within the preparation margin are blocked out in the restoration bottom.	YES	YES

Attachment

Parameters	Description	Default value
Attachment Diameter	• Diameter of the cylindrical anchor of the positive part.	1500
Attachment Height	• Height of the entire positive part.	2000
Attachment Bridge Length	• Length of male bridge. The male bridge is the connecting element between the anchor and the base.	1000
Attachment Bridge Width	• Width of bridge.	1000
Attachment Gingiva Distance	• Distance from male bottom to gingival adaptation. • Negative values result in a penetration of the gingiva.	0
Attachment Gingiva Adaption	• Gingival adaptation: yes / no	YES
Attachment Spacer Value	• Divided attachment: Space between positive part and cut-out negative part in neighboring positive part.	80 µm
Attachment Shoulder Width	• Size of plate located on the gingiva.	500 µm

Bar

Parameters	Description	Default value
Bar Height	• Describes the height of the bar segment in µm.	3000
Bar Width	• Describes the width of the bar segment in µm.	3000
Bar Cone Angle	• Describes the angle of incidence of lateral and friction surfaces in degrees. • Applies only to primary bars (design mode squared).	4 °

Parameters	Description	Default value
Bar Smoothing Radius	• Describes the radius of the junction between the anchor element and the bar in µ. This should guarantee a smooth junction between the anchor and the bar and prevent predetermined breaking points.	2500 µm
Bar Interdental Space	• Space in µm required to ensure easy cleaning. This space is left in the anchor-bar transition zone between the bar and the gingiva.	1000 µm

Pontic (anatomical, framework)

Parameters	Description	Default value	
		Anatomical	Framework
Gingival Spacing	• Space between pontic and preparation geometry/gingiva.	0	0
Lingual Opening Angle	• Increase of pontic for the basal area in the oral direction.	0	0
Proximal Contacts Strength	• Set the thickness of the approximal contacts. • The software tries to achieve this stored thickness in the restoration suggestions.	25 µm	-
Occlusal Contacts Strength	• Set the thickness of the occlusal contacts. • The software tries to achieve this stored thickness in the restoration suggestions.	25 µm	-

Crown (bottom layer)

Parameters	Description	Default value
Spacer	• Possibility for setting the space for the fastening material below the restoration. Acts up to the preparation margin.	80 µm
Occlusal Milling Offset	• Set the minimum wall thickness in the horizontal direction. • The value determines the radial wall thickness of the crown cap. • DESIGN and MILL phases: The value is displayed on the preparation as a semitransparent geometry together with the minimum occlusal thickness and the instrument geometry setting. Areas where the thickness falls short of the minimum level in the design phase are thus made visible.	0 µm
Minimal Thickness (Radial)	• Determines the minimum radial wall thickness in the horizontal direction. • Can be switched on and off	500 µm ON

Parameters	Description	Default value
Minimal Thickness (Occlusal)	• Determines the minimum radial wall thickness in the occlusal direction. • Can be switched on and off	700 µm ON
Telescope Angle	• Angle by which the outer wall of the telescope cone is inclined inward in relation to the restoration axis.	4 °
Regard Instrument Geometry	• Considers the instrument geometry in the bottom of the restoration. • Areas of the preparation that are smaller than the diameter of the instrument geometry are calculated in the bottom of the restoration so that they increase with the instrument geometry.	YES
Remove Undercuts	• Undercuts within the preparation margin are blocked out in the restoration bottom.	YES

Crown (top layer)

Parameters	Description	Default value
Spacer	• Possibility for setting the space for the fastening material below the restoration. Acts up to the preparation margin.	80 µm
Occlusal Milling Offset	• Apply or remove material in the occlusal direction over the entire occlusal surface. • This value concerns only the milling result. • DESIGN and MILL phases: The effects are not visible.	0 µm
Minimal Thickness (Radial)	• Set the minimum wall thickness in the horizontal direction. • The software tries to achieve this stored thickness in the restoration suggestions.	500 µm ON
Minimal Thickness (Occlusal)	• Set the minimum wall thickness in the occlusal direction. • The software tries to achieve this stored thickness in the restoration suggestions.	700 µm ON
Regard Instrument Geometry	• Considers the instrument geometry in the bottom of the restoration. • Areas of the preparation that are smaller than the diameter of the instrument geometry are calculated in the bottom of the restoration so that they increase with the instrument geometry.	YES
Remove Undercuts	• Undercuts within the preparation margin are blocked out in the restoration bottom.	YES

Model

Observe the information supplied concerning the pins, model holders and base plates.

Parameters	Description
Segmentation Cut Width	• Set the width of the saw-cut.
Baseplate Distance	• Adjust the distance of the base plates from each other.
Pin Diameter	• Set the diameter of the pins.
Pin Spacing	• Set the distance of the pins from each other.

Virtual articulator

The preset parameters are mean values which can be used without alteration for an average articulation.

Parameters	Description	Default values
Arms	• Set the side length for the Bonwill triangle	105µm
Base	• Set the intercondylar distance	100µm
Balkwill Angle	• Set the Balkwill angle • Affects the height of the incisal point	23°
Sagital	• Set the condylar path inclination	35°
Bennett	• Create Bennett angle	15°

Accepting settings

➢ Click on the *"Ok"* button.

Discarding settings

➢ Click on the *"Cancel"* button.

Resetting settings

➢ Click on the *"Reset All Group Parameter"* button.
  ↳ The settings for this restoration type are reset to the factory settings.

5.2 Devices

All connected devices can be displayed and configured under the menu item *"Devices"*.

A green check mark on a device indicates its availability.

Adding devices automatically

You can add additional devices with the *"Scan for New Devices"* function.

✓ The device is attached to the PC.

1. Click on the *"Scan for New Devices"* button.
   ↳ All devices attached to the PC are detected. You will be prompted to enter a name for new devices.
2. Enter a name for the new device.

Adding devices (manually)

You can manually add devices with the *"Add Device (Manual)"* function. This is mandatory for devices which cannot be operated at the maximum speed of 115,200 baud. This applies to devices with long cable connections or certain radio modules (e.g. Futaba, 19200 baud).

1. Click on the *"Add Device (Manual)"* button.
2. Select whether the device is connected to the network or in series.
3. Network: Enter the network address.
   In series: Enter the COM port and the baud rate.
4. Click on the *"Ok"* button.
   ↳ The software attempts to contact the device.

If the connection fails, check that it is correctly established. If necessary, contact a qualified technician.

Refresh status

With the *"Refresh Devices"* button, you can

- refresh the status display, e.g. check whether a milling unit has finished milling or
- check the current availability of a device.

5.2.1 inEos Blue

Under the menu item *"inEos Blue"*, inEos Blue can be set.

Setting	Description
Shake tolerance	• Set motion sensitivity for automatic activation. • The more exact the setting, the longer you have to hold the model still before taking the next scan.

Accepting settings

➢ Click on the *"Ok"* button.

Discarding settings

➢ Click on the *"Cancel"* button.

5.2.1.1 Resetting settings

➢ Click on the *"Reset inEos Blue Settings"* button.
↳ The settings are reset to factory settings.

5.2.1.2 Calibration

1. Click on the *"Calibrate"* button.
2. Then simply proceed as prompted by the software.

Also observe the operating instructions of the inEos Blue.

5.2.1.3 XYZ calibration

1. Click on the *"Calibrate XYZ"* button.
2. Then simply proceed as prompted by the software.

Also observe the operating instructions of the inEos Blue.

5.2.2 CEREC Bluecam

A CEREC SW 4.0 license and a CEREC SW 4.2 license must be present in order to use the CEREC Bluecam.

Under the menu item *"Camera"*, CEREC Bluecam can be set up.

Setting	Description
Shake tolerance	• Set motion sensitivity for automatic activation. • The more stringent the setting, the longer you have to hold the camera still before the next acquisition will be taken.
Auto-delete rejected images	• Images that could not be reconstructed/ overlaid with the current acquisitions are automatically moved to the Recycle Bin.

Accepting settings

➢ Click on the *"Ok"* button.

Discarding settings

➢ Click on the *"Cancel"* button.

5.2.2.1 Resetting settings

➢ Click on the *"Reset Camera Settings"* button.
↳ The settings are reset to factory settings.

5.2.2.2 Calibration

1. Click on the *"Calibrate"* button.
2. Then simply proceed as prompted by the software.

5.2.3 CEREC Omnicam

A CEREC SW 4.0 license and a CEREC SW 4.2 license must be present in order to use the CEREC Bluecam.

Camera mode

Using the *"Camera Mode:"* function, you can choose between intraoral or extraoral measurements.

Audio feedback

Using the *"Sound:"* selection box, you can switch the audio feedback for acquisitions on or off. You can control the volume using the slide bar.

Accepting settings

➢ Click on the *"Ok"* button.

Discarding settings

➢ Click on the *"Cancel"* button.

5.2.3.1 Resetting settings

➢ Click on the *"Reset Camera Settings"* button.
  ↳ The settings are reset to factory settings.

5.2.3.2 Calibrating CEREC Omnicam

The measurement procedure used by the system requires the use of a calibrated CEREC Omnicam. The CEREC Omnicam is factory calibrated. If calibration is required, you can use the supplied CEREC Omnicam calibration set for this purpose. The supplied calibration set and a USB stick form a single unit.

Recalibrate the CEREC Omnicam in the following cases:

- following transport (shaking stress) or during first commissioning
- after storage in unheated or un-air-conditioned rooms (temperature differences exceeding 30°C)
- with temperature differences of over 15°C between the last calibration and operation

Prior to the first calibration

The serial number of the calibration set to be used has been set on the CEREC AC with Omnicam at the factory. Prior to the first calibration after changing the PC and when switching the calibration set, you must enter the serial number of the calibration set to be used in the software. If you do not wish to do this, you can continue with "Start calibration [→ 36]".

When entering the serial number, the following steps should be followed:

1. Start the CalibRegistry.exe application on the USB stick included with delivery of the calibration set.
2. Enter the 8-digit Sirona ID. You can find the ID on the sticker on the calibration set.
   ↳ With all future calibration work involving the *"2011"* software, you will be prompted to use this calibration set.

Start calibration

1. In the software, navigate to the system menu, and click on the *"Configuration"* button.
2. Click the *"Devices"* button.
3. Click the *"Omnicam"* button.
4. Click the *"Calibrate"* button.
   ↳ The camera view is displayed in one window.
5. Follow the prompt to set up the calibration set with the corresponding ID number. At this point, check that this ID matches the ID on your calibration set. If this is not the case, go back to "Prior to the first calibration [→ 36]".

Calibrate the camera

1. Remove the protective cap from the calibration set.
2. Mount the calibration set on the tip of the camera until it locks into place.
3. Secure the CEREC Omnicam in the calibration set using one hand. Ensure that the external calibration set screw is fully screwed in in a clockwise motion until it gently locks into place.
4. Click on the *"OK"* button on your CEREC AC.
   - The measuring process starts.
   - The software prompts you to proceed to the next latching.

5. Turn the screw counter-clockwise until you reach the next latching point.
6. Click on the *"OK"* button on your CEREC AC. In doing so, ensure that the CEREC Omnicam does not move.
   - The software confirms the calibration process.
   - The software prompts you to proceed to the next latching.
7. Execute steps 5 and 6 a total of **11** times.
   - The software provides status updates on the calibration and informs you once the procedure is complete.
   - You will be prompted to measure the position of the exit window.

Measuring the position of the exit window

1. Mount the bottom side of the calibration set to the tip of the camera.
2. Click on the *"OK"* button on your CEREC AC.
   ↳ The calibration process is continued.
   ↳ Once the calibration is complete, a message is displayed indicating this.
3. Confirm the message by clicking the *"OK"* button on your CEREC AC.

↳ The CEREC Omnicam is calibrated.

Error message during calibration

The software indicates if an error occurs during calibration. If the calibration process resulted in errors, restart the process.

End calibration

✓ The software indicates that the calibration was completed successfully.

➢ Click on the *"OK"* button.
   ↳ The CEREC Omnicam is calibrated.

5.2.4 Milling unit

5.2.4.1 Editing settings

inLab MC XL

You can subsequently edit the following settings via the menu item *"MC XL"*:

- Name
- Connection settings
  - Retrieve IP settings automatically
  - Specify IP settings manually
- Manual block fixing
  - If you use manual block fixing, a check mark must be placed in front of *"Manual block fixation"*.
  - Models can only be milled using manual block fixation.

- Second motor set
  - The check mark must be placed in front of *"Two Bur Sets"*.
  - You can deactivate bur sets individually. A deactivated bur set will simply be ignored during milling, calibration etc.
    NOTICE! The restoration may be damaged if longer milling instruments are present in the deactivated bur set than in the active set. Ensure that the milling instruments installed in the deactivated bur set are not longer than those in the active set.
- Scanner
  - If the milling unit has an integrated scanner, a check mark must be placed in front of *"Scanner"*.
  - Use the scanner to read bar codes.
- Bar code reader
  - If a bar code reader is used, this option must be activated.
- External tank
  - If the external water tank is connected and the check mark has been placed, you will not be reminded to change the water until a later point in time.

inLab

You can subsequently edit the following settings via the menu item *"CEREC 3/inLab"*:

- Name
- Connection settings
- Large water tank
  - If the 25-liter canister (option, Order No. 60 56 217) is connected and the check mark has been placed, you will not be reminded to change the water until a later point in time.
  - If the 25-liter canister is retrofitted, your service engineer must place a check mark in the box in front of *"Large water tank"*.
- Scanner
  - If the *"CEREC 3/inLab"* milling unit has an integrated scanner (option, Order No. 58 33 707) a check mark must be placed in front of *"Scanner"*.
  - If a scanner is retrofitted, your service engineer must place a check mark in front of *"Scanner"*.

5.2.4.2 Calibration

1. Click on the *"Calibrate"* button.
2. Then simply proceed as prompted by the software.

5.2.4.3 Changing instruments

1. Click on the *"Change Instruments"* button.
2. Then simply proceed as prompted by the software.

5.2.4.4 Removing the milling unit

1. Click on the *"Delete Device"* button.
2. Then simply proceed as prompted by the software.

5.3 Options

5.3.1 Bite registration

Here you can set whether the image catalog is offered for bite registration.

Setting	Description
Activate	The image catalog is offered for bite registration. You can carry out bite registration in the MODEL phase.
Deactivate	The image catalog is not offered for bite registration. The buccal bite registration must be used.

5.3.2 Virtual articulator

Use Articulation:

Setting	Description
Activate	The articulator is displayed to the right-hand side of the page palette during the construction. It can be activated at any time for constructing the restorations.
Deactivate	The articulator is not displayed to the right-hand side of the page palette during the construction.

Use Articulation for initial proposal:

Setting	Description
YES	The dynamic contact points are taken into consideration in the initial suggestion.
NO	Only the static contact points are taken into consideration in the initial suggestion. The dynamic contacts are identified by color (occlusal compass acc. to Schulz).

5.3.3 Smile Design

Setting	Description
Activate	The Smile Design function is available and can be activated for the respective case under *"Options"* in the phase ADMINISTRATION .
Deactivate	The Smile Design function is not offered in the ADMINISTRATION phase.

5.4 Settings

The menu item *"Settings"* has the following subitems:

5.4.1 Odontogram

You can set the odontogram using *"ADA/FDI Notation"*:

- International (*"FDI Notation"*)
- USA (*"ADA Notation"*)

5.4.2 Reset notes

Here, all warnings can be displayed again.

Setting	Description
YES	Displays all the deactivated warnings in the workflow again.
NO	Warnings which were previously hidden, remain hidden.

5.4.3 Checking restoration parameters

Here, you can select whether the restoration parameters will be displayed during the construction.

Setting	Description
YES	The restoration parameters are displayed before the restoration is calculated. You can change the values.
NO	The parameters are not displayed. The values set under *"Configuration"* / *"Parameters"* are used.

5.4.4 Database

In the *"Patient Database"* menu item, you can select where patient data and cases are saved.

You can specify a folder for this data. This allows you, for example, to save all data on a secure server on the practice network.

Alternatively, you can manage patient data with SIRONA SIDEXIS software and save cases in a database created in SIDEXIS.

5.4.5 Calculating restorations

Using *"Restoration Calculation"* you can define the behavior on entering the *"DESIGN"* phase.

Setting	Description
YES	On entering the *"DESIGN"* phase, suggestions for all restorations are automatically calculated, for which the preparation margin and the insertion axis/restoration axis have been defined. If this option is activated, it may result in lengthy computing times when editing numerous restorations.
NO	Upon entering the *"DESIGN"* phase, only the restoration proposal for the currently active tooth number is calculated.

5.4.6 Auto-hide the page palette

The page palette will automatically be minimized if you use a tool.

This setting affects the phases MODEL and DESIGN.

Setting	Description
YES	After selecting a tool, the palette will be minimized and only the symbol of the active tool will be displayed. The entire palette opens again when the mouse is positioned over it. **Tip:** Use this setting if you frequently work with the tool wheel.
NO	Provided a tool is selected, the tool palette will always be displayed in its entirety and with all options.

5.4.7 Selecting a language

Here, you can set the language of the software. Once the software is rebooted, the language is set to your choice.

5.5 App Center (applications)

Via the Sirona App (Application) Center, you have access to various apps (applications) for our CAD CAM products. Furthermore, you have access to a website that shows you the apps available. The website also contains additional information on where you can download the apps.

6 Restoration types and design mode

6.1 Restoration types

Single tooth restoration

Symbol	Restoration type	Design mode
	Crown	• Biogeneric Individual (Split: MultiLayer) • FrameWork • Biogeneric Copy (Split: MultiLayer) • Biogeneric Reference (Split: MultiLayer) • Telescope
	Inlay/Onlay	• Biogeneric Individual • Biogeneric Copy
	Veneer	• Biogeneric Individual • Biogeneric Copy • Biogeneric Reference
	Abutment	• Biogeneric Individual (Split: MultiLayer) • FrameWork • Biogeneric Copy (Split: MultiLayer) • Biogeneric Reference (Split: MultiLayer)

Bridge restoration

Symbol	Restoration type	Design mode
	Crown	• Biogeneric Individual • FrameWork • Biogeneric Copy • Biogeneric Reference • Telescope
	Inlay/Onlay	• Biogeneric Individual • Biogeneric Copy
	Veneer	• Biogeneric Individual • Biogeneric Copy • Biogeneric Reference
	Pontic	• Biogeneric Individual (Split: MultiLayer) • FrameWork • Biogeneric Copy (Split: MultiLayer) • Biogeneric Reference (Split: MultiLayer)
	Missing	
	Connector	• Intersection • Anatomic

Symbol	Restoration type	Design mode
	Bar	• Cylindric • Squared • Dolder • Hader
	Attachment	• Cylindric

Model

Symbol	Restoration type	Design mode
	Model	

6.2 Design mode

Biogeneric Individual

For more information, refer to "Biogeneric Individual [→ 47]“.

Biogeneric Reference

For more information, refer to "Biogeneric Reference [→ 47]“.

Biogeneric Copy

For more information, refer to "Biogeneric Copy [→ 47]“.

Anatomic / Intersection

The *"Anatomic"* and *"Intersection"* modes are available only for bridge connectors.

Anatomic
The connector is a separate element and can be edited.

Intersection
The connector is created by penetrating the neighboring teeth. It is not a separate element, and therefore cannot be edited.

Framework

Select this design technique to create frameworks or primary sections without taking the antagonist information into account. These frameworks are then not automatically suggested to support cusps.

Telescope

Select the *"Telescope"* design technique to set telescope elements for bridges. The telescope elements of a bridge are always aligned parallel.

Bars

You can select the following geometries for the bars:

Cylindric	Squared	Dolder	Hader

Multilayer

However, the fully anatomical shape is broken down into a framework with no undercut and the covering layer by this technique. The two parts can be milled from different materials.

Do not use this design technique if you want to manually veneer a framework.

6.3 Biogeneric

6.3.1 General information on Biogeneric

CEREC Biogeneric is a software that is able to reconstruct lifelike occlusal surfaces. On the basis of the features of a patient's single intact tooth, the program extrapolates the naturally created morphology of other teeth. The biogeneric occlusal design functions for all single tooth restorations and fully anatomic bridges.

Previously, all occlusal design approaches were based on dental libraries and databases containing data records of various standard teeth. Today, these databases are only enlisted if you do not want to have the biogeneric suggestion calculated from the adjacent teeth. Instead, you can select a preference form for the tooth.

It will now be possible to create crowns, inlays, onlays, veneers, and anatomically sized bridges in a fully automated manner. The reconstruction can be based on any intact patient tooth from the same type, i.e. posterior tooth or anterior tooth.

6.3.2 Biogeneric Individual

In the *"Biogeneric Individual"* design technique, the neighboring teeth are analyzed and the restoration suggestion is calculated on this basis. The more information that is available, the more successful the calculation. A full image of at least one neighboring tooth should therefore be taken from the occlusal/incisal direction. For anterior and corner teeth, an image of the labial surface should also be taken.

For premolars or molars, the calculation is mainly based on the distal neighbor, for anterior teeth the mesial neighbor is used.

6.3.3 Biogeneric Copy

Select the *"Biogeneric Copy"* design technique to transfer parts of an existing occlusal surface to the restoration and enhance the rest using the patented Biogeneric technique.

To do this, acquire the status separately in the *"BioCopy Upper"* or *"BioCopy Lower"* image field prior to the preparation.

This technique can be used for inlays, onlays, partial crowns, crowns, and bridges.

6.3.4 Biogeneric Reference

Select the *"Biogeneric Reference"* design technique for user definition of the tooth to be used as a reference for calculating the restoration suggestion. The reference tooth can be any tooth of the same class (anterior/posterior tooth), e.g. the antagonist or the contralateral tooth. You also can use a reference tooth from a model to achieve the desired morphology.

This reference tooth must be acquired on a separate basis in the *"BioRef Lower"* or *"BioRef Upper"* image field. This technique can be used for inlays, onlays, partial crowns, crowns, and bridges.

7 Edit orders

The Shortcut keys [→ 134] chapter describes how the following tools and options can be called using shortcut keys.

7.1 Tools and functions of the page palette

The page palette offers you various different functions, depending on the current step.

7.1.1 Views

In the view options, you can select whether the selection is to be applied to the restoration (Local) or the 3D patient photo.

Local

You can use the *"View Options"* button to display six predefined views in the Local area.

- *"Mesial"*
- *"Distal"*
- *"Buccal"* | *"Labial"*
- *"Lingual"*
- *"Cervical"*
- *"Occlusal"* | *"Incisal"*

Global

You can use the *"View Options"* button to display six predefined views in the Global area.

- *"Top"*
- *"Bottom"*
- *"Right"*
- *"Left"*
- *"Front"*
- *"Back"*

Changing the view

1. Click on the *"View Options"* button.
2. Click on one of the proposed views.
   ↳ The virtual model rotates to the corresponding view.

Enlarging or reducing the view

1. Click on the *"View Options"* button.
2. Position the mouse pointer over the center tooth icon and press and hold the left mouse button.
   ↳ The icon then changes to a magnifying glass.

3. Pull the mouse button up or down.
   ↳ The virtual model is then enlarged or reduced.

Tip: You also can use the mouse scrollwheel to enlarge or reduce the view.

7.1.2 Tools

The most important tools are also offered to you in the tool wheel. For more information on the tool wheel, refer to the section Tool wheel [→ 59].

You will find all tools as a submenu under *"Tools"*.

Tip: To prevent automatic minimization of the tool window, go to the configuration under *"Options"* and select the option 'No' in the *"Tool-Menu"*.

Tip: You can cancel the current tool with the stop icon (top right).

Undo and reset
With the *"Undo"* button in the tools you can undo the last change made.

With the *"Reset"* button you can reset changes that were made with the tool.

7.1.2.1 Buccal registration

Displacing a buccal image

With the *"Drag Buccal"* function, you can displace the buccal image.

1. Click on the *"Buccal"* button.
2. Click on the *"Drag Buccal"* button.
3. Click on the buccal image and displace it to the same region on the upper and the lower jaw.
   ↳ The image is accepted.
   Tip: If an image is not accepted, align the jaw buccally. This enables better overlapping.
   If registration is still not possible, check whether the buccal sections in the jaws and in the buccal image are sufficient.
4. If the image was accepted, move the image to the corresponding region of the opposite jaw.

Rotating a buccal image

With the *"Flip Buccal Impression"* function, you can rotate the buccal image.

1. Click on the *"Buccal"* button.
2. Click on the *"Flip Buccal Impression"* button.
   ↳ The buccal image is then rotated.

7.1.2.2 Buccal bite tools

You can adjust the occlusion using the following tools.

Move jaw

Using the *"Align Jaw"* function, you can correct the buccal bite by positioning and rotating the upper jaw.

➢ Click on the *"Align Jaw"* button.
  ↳ The rotating/positioning tool will be shown.

Settling

Using the *"Settling"* function, you can state areas that are not to be taken into account in bite determination.

1. Click the *"Settling"* button.
2. Using the left mouse button, select the area on a jaw half that is not to be taken into account in bite determination.
3. Click on *"Apply"*.
   ↳ The software will restart the buccal registration.

7.1.2.3 Shaping

With the *"Form"* function, you can

- apply
- remove
- or smooth material.

Tip: When one of the shape tools is activated, you can also switch to the following order using the space bar on the keyboard:
Apply > Remove > Smooth > Apply > ...

Apply material

1. Click on the *"Form"* button.
2. Click on the *"Add"* button.
3. Click with the mouse cursor on the area you wish to shape.
4. Press and hold the left mouse button and apply the material to the surface location by moving the mouse.

Removing material

1. Click on the *"Form"* button.
2. Click on the *"Remove"* button.
3. Press and hold the left mouse button and remove the material from the surface location by moving the mouse.

Smoothing

When smoothing, you can smooth the surface locally.

1. Click on the *"Form"* button.
2. Click on the *"Smooth"* button.
3. Click with the mouse cursor on the location you wish to smoothen.
4. Press and hold the left mouse button and smoothen the surface location by moving the mouse.

Properties

Modifying the size

You can use the *"Size"* button to modify the size of the area affected. The area affected is shown as an orange colored area. The size of the area affected can be modified for each forming tool.

1. Click on the *"Form"* button.
2. Click the *"Size"* button and press and hold the mouse button.
3. Pull the mouse cursor up or down.
   - The size of the orange area is enlarged or reduced. The size is shown on the restoration.

Tip: You can also change the size by clicking on the restoration with the right mouse button and, while holding the right mouse button down, dragging the mouse up or down.

Hiding the neighboring restoration

You can hide the neighboring restoration with the *"Hide Neighbors"* function.

7.1.2.4 Cutting off model regions

With the *"Cut"* function, you can cut out model areas The cut out model areas are then discarded. You cannot display cut out areas later on.

Remove model area

With the *"Discard Part"* function, model areas can be removed.

When performing this activity, be careful not to accidentally cut out any areas that e.g. are located behind the model or are otherwise cut away from the line.

1. Click on the *"Cut"* button.
2. Begin the cut line with a double-click.
3. Click to set additional points.
4. Finish the cut by double clicking.
   - The model area is cut off.

Invert model area

With the *"Invert Selected"* function, the model area that is cut out can be inverted.

✓ The *"Cut"* tool is selected.

✓ You have created a cut.

➢ Click on the *"Invert Selected"* button.

↳ The model area which was cut out is displayed.
The rest of the model area is hidden.

Tip: You can invert the model area that is cut out by double-clicking on the semitransparent cut-out area.

7.1.2.5 Correcting defects

With the *"Replace"* function, you can correct defects and artifacts on the model (e.g. holes or elevations).

To do so, drag a line around the defect in your model and select the appropriate function.

1. Click on the *"Replace"* button.
2. Set the starting point with a double-click.
3. Click to set further points in order to enclose the defect tightly. The line must be located completely on the model.
4. Set the line end by double-clicking.
   ↳ The line is finalized.
   Tip: You can use delete to remove the line.
5. Click on the *"Apply"* button.
   Tip: The tool can also be triggered by pressing the Enter key.
   ↳ The software smoothens everything within the line by interpolation.

7.1.2.6 Resetting changes

The *"Reset Model"* function is used to reset all changes.

1. Click on the *"Tools"* button.
2. Click on the *"Reset Model"* button.
   ↳ The program will ask whether you really want to reset all changes.
3. Confirm with *"Ok"*.

7.1.2.7 Trimming

With the *"Trim"* function, you can isolate the preparation. You can thus e.g. draw in the preparation margin more easily. Trimmed image regions can be optionally displayed and hidden later on.

Hiding image regions

The *"Discard Part"* function enables you to hide image regions.

The trim line also can be placed over the preparation line. Only the region underneath the preparation will then be hidden automatically. The prepared region remains fully intact.

1. Click on the *"Trim"* button.
2. Click on the *"Discard Part"* button.
3. Start by double-clicking in the vicinity of the model or on the model.

4. Click to set additional points. Draw the line close to the preparation around which you want to trim.
5. Finish the line by double clicking.
   ↳ The smaller region of the model is hidden.

Inverting an image region

With the *"Invert Selected"* function, the hidden image region can be inverted.

✓ An image region has been hidden using the *"Trim"* tool.
➢ Click on the *"Invert Selected"* button.
   ↳ The hidden image region will be shown.
   The image region shown will be hidden.

Tip: You can invert the hidden image region by double-clicking on the semitransparent hidden region.

7.1.2.8 Entering the preparation margin

For further information on using this tool, see the section Entering the preparation margin [→ 101].

Automatic edge detection

With *"Margin"* / *"Auto"*, you can work with automatic edge detection.

1. Click on the *"Margin"* button.
2. Click on the *"Auto"* button.
   ↳ Automatic edge detection is switched on.

Manual drawing

With *"Manual"* you can draw in the preparation margin manually. With this technique, you must place the individual points close together in order to clearly define the contour of the preparation margin even in difficult situations.

✓ The *"Margin"* tool is open.
➢ Click on the *"Manual"* button.
   ↳ The manual technique is switched on.

Manual drawing with intensity image

With *"Manual with intensity image"* you can manually draw in the preparation margin on the intensity image.

✓ The *"Margin"* tool is open.
➢ Click on the *"Manual with intensity image"* button.
   ↳ The manual technique with intensity image is switched on.

Tip: As long as the *"Margin"* tool is activated, you can switch back and forth between the drawing options by pressing the space bar.

7.1.2.9 Positioning

With the *"Move"* function, you can displace, rotate, and scale the restoration.

Displacing and rotating

With the *"Position and Rotate"* tool, you can displace and rotate the restoration.

Displacing and rotating the restoration

➢ Left-click on an arrow symbol and hold the button down.

↳ You can displace or rotate the restoration in the corresponding direction.

Changing axes

➢ Right-click on an arrow symbol and hold the button down.

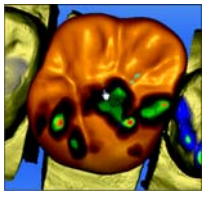
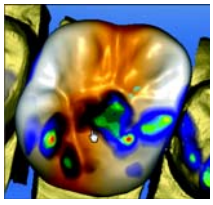
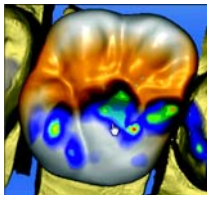
↳ You can change the axis on which the object is rotated or moved.

Scaling

With the *"Scale"* function, you can change the size of the restoration. The area affected is shown as an orange-colored area.

1. Click the *"Move"* button.
2. Click the *"Scale"* button.
3. Drag the mouse cursor to the restoration until the desired area is highlighted.
4. Hold the left mouse button down and drag the mouse to enlarge or reduce the restoration.

↳ The orange-colored area will be expanded or reduced.

Layout	Effect
	Drag the mouse to enlarge or reduce the entire restoration.
	Drag the mouse to enlarge or reduce the restoration in the bucco-lingual direction.
	Drag the mouse to enlarge or reduce restoration in the mesio-distal direction.

7.1.2.10 Shaping

The *"Shape"* function enables you to shape a selected region.

You can shape the restoration in 3 ways:

Function	Description
Auto	The software preselects the movement axis based on the screen perspective.
2-Direction	The movement is possible along one axis orthogonal to the restoration surface.
4-Direction	The movement is possible along two axes parallel to the restoration surface.

Anatomic

The *"Auto"* function is used to preselect regions of morphology, e.g. cusps or fissure lines, for designing.

Circular

The *"Manual"* is used to preselect a circular region for designing.

Properties:

Modifying the size
This option is available only for the circular variant.

You can use the *"Size"* button to modify the size of the area affected. The area affected is shown as an orange colored area.

1. Click on the *"Shape"* button.
2. Click the *"Size"* button and press and hold the mouse button.
3. Pull the mouse cursor up or down.
   ↳ The size of the orange area is enlarged or reduced. The size is shown on the restoration.

Tip: You can also change the size by clicking on the restoration with the right mouse button and, while holding the right mouse button down, dragging the mouse up or down.

Overall scaling
The option is only available for the automatic tool.

You can use the *"Scale Whole"* button to change the overall size of the restoration.

Hiding the neighboring restoration

You can hide the neighboring restoration with the *"Hide Neighbors"* function.

7.1.2.11 Contacts

If you modify the restoration, the contact surfaces also will be displaced. The *"Contacts"* function is used to reset the contacts to the thickness set in the parameters.

1. Click the *"Contacts"* button.
2. Click the *"Mesial"*, *"Distal"*, *"Occlusal"*, or *"FGP"* button.
   ↳ The respective contact surface is then reset.

Hiding the neighboring restoration

You can hide the neighboring restoration with the *"Hide Neighbors"* function.

7.1.2.12 Varying Biogeneric Morphology

With the *"Biogeneric Variation"* function, you can generate different variants of the possible morphology.

1. Click the *"Biogeneric Variation"* button and press and hold the mouse button.
2. Pull the mouse cursor up or down.
   ↳ The morphology is then changed.
3. Let go of the mouse button when the morphology that is optimal for your purposes becomes visible.

7.1.2.13 Adjusting the sprue position

The *"Sprue"* function enables you to rotate the position of the sprue location on the restoration in 2 ways:

- Step-by-step, by clicking on the arrow in the circle segment.
- Continuously, by clicking and holding the left mouse button inside the circle segment and moving the mouse.

7.1.2.14 Moving the block

Displace

The *"Position"* function enables you to displace the block surrounding the restoration in all spatial directions until the restoration strikes one of the block margins.

You can move the block in 3 ways:

- Step-by-step, by clicking on one of the arrows showing the movement axes on the semitransparent cube.
- Continuously in 2 directions, by clicking on one side of one of the cube surfaces, holding the button down and moving the mouse.
- Continuously in all 4 directions, by clicking in the center of a cube surface, holding the button down and moving the mouse.

Rotate

With the *"Rotate"* function, you can rotate the restoration about the axis of the block.

You can rotate the restoration in the block in 2 ways:

- Step-by-step, by clicking on the arrow in the circle segment.
- Continuously, by left-clicking on or inside of the circle segment and moving the mouse.

7.1.2.15 Reduce

With the *"Reduce"* function, you can anatomically reduce the restoration: You also can perform partial reductions.

1. Click the 'Reduce' button.
2. Double-click on the restoration and draw a closed line.

Tip: You can use the space bar or *"Toggle area"* to switch the area to be reduced. It is displayed as an orange colored area.

Properties

Reduction strength

Use *"Reduction Strength"* to set the reduction strength.

1. Click the *"Reduce"* button.
2. Click the *"Reduction Strength"* button and press and hold the mouse button.
3. Change the reduction strength by moving the mouse up or down.

Attaching the pontic to the gingiva

If the *"Stick Pontic Base to Gingiva"* function is active, the base of the pontic is not reduced for a full reduction.

Hiding the neighboring restoration

You can hide the neighboring restoration with the *"Hide Neighbors"* function.

7.1.2.16 Incisal variation

Using the *"Incisal Variation"* function, you can generate textures (mamelons) for front teeth.

1. Click the *"Incisal Variation"* button.
2. Using the left mouse button, click on the controller and draw the mouse downwards to set the thickness of the textures on the teeth.
3. Click with the left mouse button on the tooth to move the texture on the tooth.

7.1.2.17 Using a gingival mask

In the step *"Click Scanbody"*, you can select whether or not the gingival mask is to be used for calculating the emergence profile. This option is available only if a gingival mask was acquired in the *"SCAN"* phase.

7.1.2.18 Scale

You can use this tool for frameworks, telescopes, multilayer frameworks and bars.

In the tool menu, you can select whether the tool is to be effective in the radial or the occlusal direction. You can toggle between these directions with the space bar or with the mouse.

1. Place the mouse pointer on an active restoration.
   - Various design elements are then offered, depending on the restoration type.
   - An arrow shows the direction in which the scaling will occur. The area affected is shown highlighted in orange.
2. Press and hold down the left mouse button.
3. Move the mouse to change the object.

Radial/occlusal

You can edit the edge of the crown caps and bridge frameworks for the restoration type FrameWork in radial or occlusal direction.

1. Click on the *"Scale"* button.
2. Click on either *"Radial"* or *"Occlusal"* as applicable.
3. Place the mouse pointer on an active restoration.
   - The area affected is shown highlighted in orange.
4. Press and hold down the left mouse button.
5. Move the mouse to change the object.

Properties

Modifying the size

If a check mark is placed in front of *"Complete"* the area affected is maximized and applies to the entire design element. If no check mark is placed, you can determine the area affected individually.

You can use the *"Size"* button to modify the size of the area affected. The area affected is shown as an orange colored area. The size of the area affected can be modified for each forming tool.

1. Click on the *"Scale"* button.
2. Click the *"Size"* button and press and hold the mouse button.
3. Pull the mouse cursor up or down.
   - The size of the orange area is enlarged or reduced. The size is shown on the restoration.

Tip: You can also change the size by clicking on the restoration with the right mouse button and, while holding the right mouse button down, dragging the mouse up or down.

7.1.2.19 Creating a cavity design

If you click on this tool, the female part of the attachment in the restoration element to be mounted is calculated. The male part of the attachment must be finished for this purpose.

7.1.2.20 Tool wheel

The tool wheel makes the standard tools available in the MODEL and DESIGN phases in order to simplify access. The tools currently available vary depending on the current step.

1. Right-click in the workspace.
   ↳ The tool wheel opens.
2. Click with the right mouse button anywhere in the workspace.
   ↳ The tool wheel moves to the position of the mouse pointer.
3. Select a tool.
   ↳ The selected tool is available. The tool wheel closes automatically.

You also can close the tool by clicking in the workspace with the left mouse button.

7.1.2.21 Adjusting connectors

Various tools are available for designing the connectors.

Scaling

With the *"Scale"* function, you can adjust the connectors.

1. Click the *"Scale"* button.
2. Place the mouse pointer on an active connector.
   ↳ The area affected is shown highlighted in orange.
3. Press and hold down the left mouse button.
4. Move the mouse to change the object.

If you have selected the *"Scale Whole"* option, you can adjust the entire connector.

Positioning

With the *"Move"* function, the connector can be displaced.

1. Click the *"Move"* button.
2. Place the mouse pointer on an active connector.
   ↳ The area affected is shown highlighted in orange.
3. Press and hold down the left mouse button.
4. Move the mouse to change the object.

If you have selected the *"Position All"* option, you can displace the entire connector. The neighboring elements are displayed transparently.

The adhesion sites are recalculated after displacement.

Editing lines

You can change the lines of a connector with *"Drag Line"*. The neighboring elements are displayed transparently.

1. Click the *"Connector Edit Lines"* button.
2. Click the *"Drag Line"* button.
3. Drag the lines as required.

You can redraw the lines of a connector with *"Edit Line"*.

1. Click the *"Connector Edit Lines"* button.
2. Click the *"Edit Line"* button.
3. Redraw the line at the required points.

7.1.3 Displaying objects

You can use these functions to display and hide the region of the model and that of the restorations.

1. Click on the *"View Options"* button.
2. Click the respective button.
   ↳ The affected region is then displayed or hidden.

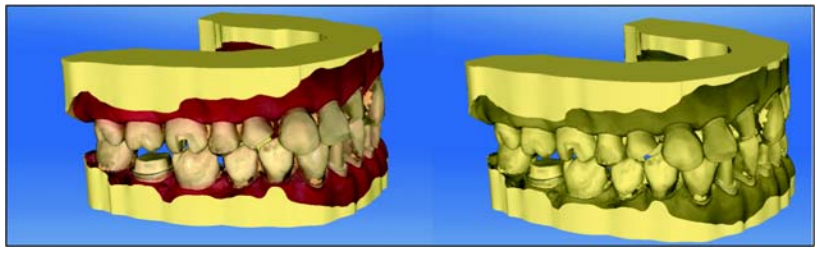
	With the *"Upper Jaw"* button, you can display and hide the **upper jaw**.
	With the *"Lower Jaw"* button, you can display and hide the **lower jaw**.
	You can adjust the **transparency of the upper/lower jaw** continuously. ➢ Place the mouse pointer on the respective button, press and hold the left mouse button and move the mouse up or down.
	With the *"Minimal Thickness"* button, you can show and hide the **display of minimum thicknesses**. You can set the minimum thickness under *"Parameters"*. For more information, refer to the section on Parameters.
	With the *"Restoration"* button, you can display and hide the **restoration**.
	You can adjust the **transparency of the restoration** continuously. ➢ Place the mouse pointer on the *"Restoration"* button, press and hold the left mouse button and move the mouse up or down.
	With the *"Trimmed Model"* button, you can display and hide the **trimmed region**.
	With the *"BioCopy Upper"* button, you can display and hide the **BioCopy upper jaw** region (only if the corresponding image catalog contains images).

	With the *"BioCopy Lower"* button, you can display and hide the **BioCopy lower jaw** region (only if the corresponding image catalog contains images).
	With the *"BioRef Upper"* button, you can display and hide the **BioReference upper jaw** region (only if the corresponding image catalog contains images).
	With the *"BioRef Lower"* button, you can display and hide the **BioReference lower jaw** region (only if the corresponding image catalog contains images).
	With the *"Gingiva Mask Upper Jaw"* button, you can display and hide the **Gingival mask upper jaw** region (only if the corresponding image catalog contains images).
	With the *"Gingiva Mask Lower Jaw"* button, you can display and hide the **Gingival mask lower jaw** region (only if the corresponding image catalog contains images).
	With the Implant button, you can display and hide **implants** (abutment only).
	With the TiBase button, you can display and hide the **TiBase** (abutment only).

7.1.4 Analysis tools

Color model

Using the *"Color Model"* button, you can change the color of models that were acquired with the CEREC Omnicam.



Contact surfaces on the virtual model

Using the *"Model Contacts"* button, the contact surfaces on the virtual model can be displayed or hidden.

1. Click on the *"Analyzing Tools"* button.
2. Click on the *"Model Contacts"* button.
   ↳ The contact areas on the model are displayed or hidden.

Penetration/pressure:	> 100 µm 100 - 50 µm 50 - 0 µm
Distance:	0 - 50 µm 50 - 100 µm > 100 µm

Contact surfaces on the restoration

You can use the page palette button to check the occlusal contact points of the jaws.

The same color scheme is used as when displaying the contacts to the neighboring teeth or to the opposing jaw.

Penetration/pressure:	> 100 µm 100 - 50 µm 50 - 0 µm
Distance:	0 - 50 µm 50 - 100 µm > 100 µm

Side and bottom surfaces

Using the *"Model Box"* button, the virtual model can be displayed without the sides and bottom.

1. Click on the *"Analyzing Tools"* button.
2. Click on the *"Model Box"* button.
   ↳ The virtual model is displayed without side and bottom surfaces.

Tip: In the MILL phase show the relevant jaw model (show reference objects) and hide the bottom of the model in order to check the fit from all sides.
This enables you to check the tightly sealed preparation limit and check whether the ceramic extends through the preparation. This is a reference to areas where the restoration may be too low.

Occlusal contacts

Using the *"Occlusal Contacts"* button, the occlusal contact points of the active restoration, which are displayed in color, can be shown or hidden.

1. Click on the *"Analyzing Tools"* button.
2. Click on the *"Occlusal Contacts"* button.
   ↳ The restoration is displayed with or without occlusal contacts.

Proximal contacts

Using the *"Proximal Contacts"* button, the approximal contact points of the active restoration. which are displayed in color, can be shown or hidden.

1. Click on the *"Analyzing Tools"* button.
2. Click on the *"Proximal Contacts"* button.
   ↳ The restoration is displayed with or without proximal contacts.

Model color

Using the *"Color restoration"* button, the restoration can be displayed in the model color.

1. Click on the *"Analyzing Tools"* button.
2. Click on the *"Color restoration"* button.
   ↳ The virtual model is shown in white or the model color.

Cutting

Using the *"Cut"* button, a cut can be placed through the restoration and model in the screen plane.

1. Click on the *"Analyzing Tools"* button.
2. Click on the *"Cut"* button.
   ↳ A cut is placed in the screen plane through the virtual model.

3. Click on the "Move cut" buttons to move the cut plane.

Cursor details

The height and thickness of the restoration can be displayed using the *"Cursor Details"* button. The cursor details are displayed at the bottom left of the screen.

1. Click the *"Analyzing Tools"* button.
2. Click the *"Cursor Details"* button.
   ↳ The height and thickness of the restoration are displayed on the mouse cursor and updated in real time.

Depending on the type of restoration, the following information is displayed:

Height	Distance from this point to the bottom of the model
Fissure height	Minimum thickness in fissure.
Thickness	Thickness of the restoration at this point
With anatomical connectors	Smallest section

Distance

You can use the *"Distance"* button to measure distances.

1. Click on the *"Analyzing Tools"* button.
2. Click on the *"Distance"* button.
3. Click on the restoration to define the starting point and the end point.
   ↳ The distance is then displayed.

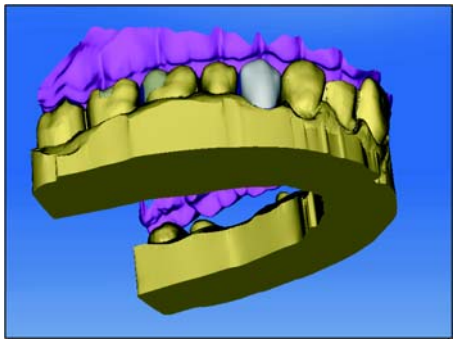
Grid

With the *"Grid Mode"* function, you can display a grid comprised of vertical and horizontal lines. It serves as an orientation guide.

Guidelines

The *"Guideline Mode"* function enables you to display and hide the Smile Design auxiliary planes.

7.1.5 Articulation



The *"Articulation"* function enables you to configure a restoration taking the dynamics into consideration.
Once the initial suggestion has been calculated, the dynamic contact points are displayed in color.

For the most accurate result possible, it is important that the acquisition of the jaw meets the following conditions:

- The canine guidance must be able to be carried out on both sides.
- The virtual model is accurately aligned on the guide lines when setting the model axis.

The virtual articulator uses Camper's plane as a reference plane for the articulation parameters. The Camper's plane is usually parallel to the occlusal plane.

Once the model axis has been set, you can activate the virtual articulator at any time by using the button in the page palette.

IMPORTANT
Use the lower jaw to set the model axis.

Articulation Parameters

The values for articulation only apply for the current restoration. You can adjust the settings in the *"MODEL"* and *"DESIGN"* phases.

1. Click the *"Articulation"* button.
2. Click the *"Articulation Parameters"* button.
   ↳ The articulation parameters are displayed.

You can set the following values individually:

Parameters	Setting	Mean value
"Arms"	Side of the Bonwill triangle	105 mm
"Base"	Intercondylar distance	100 mm
"Balkwill Angle"	Balkwill angle	22°
"Sagital"	Sagittal condylar path inclination	34°
"Bennett"	Bennett angle	15°

Functionally generated path (FGP)

You can show a virtual FGP for the opposing jaw or the jaw using the *"Lower Virtual FGP"* and *"Upper Virtual FGP"* functions. The cover shows the maximum movement of the respective jaw for the selected articulation parameters.

The interrupting contacts are displayed by the FGP. The interrupting contacts can correspondingly be removed using the tools.

Lower virtual FGP

1. Click the *"Articulation"* button.
2. Click the *"Lower Virtual FGP"* button.
   ↳ The virtual FGP is displayed.

Upper virtual FGP

1. Click the *"Articulation"* button.
2. Click the *"Upper Virtual FGP"* button.
   ↳ The virtual FGP is displayed.

Occlusal Compass

The occlusal compass can be calculated using the virtual FGP. The software uses the Schulz occlusal compass.

The *"Occlusal Compass"* button enables you to display and hide the dynamic contact points.

1. Click the *"Articulation"* button.
2. Click the *"Occlusal Compass"* button.
   ↳ The dynamic contact points are displayed.

Color	Dynamic contact point
Blue	Laterotrusion
Green	Mediotrusion
Black	Protrusion
Red	Centric
Yellow	Latero-protrusion

Articulation Animation

The *"Articulation Animation"* button enables you to start the animation of the calculated chewing movement.

1. Click the *"Articulation"* button.
2. Click the *"Articulation Animation"* button.
   ↳ The animation is started.

7.2 ADMINISTRATION phase

Selecting a restoration type

1. Create a new order (see Creating a new order [→ 24]) or a new case (see Adding a new case [→ 25]).
2. Select the restoration type in the page palette: *"Single Restoration"* or *"Bridge Restoration"*.

Single tooth restoration

✓ You have selected the restoration type *"Single Restoration"*.

1. Select the restoration type.
   ↳ The types of restoration available match the selected tooth number.
2. Select the design mode.
   Tip: For information on the design technique, see the section Restoration types and design mode [→ 43].
3. Click on the tooth for which the restoration must be set up.
   ↳ The selected tooth is marked.
4. In the step menu, click on the step *"Select Material"* to select the manufacturer and the material.
   You must select 2 materials for the restoration type 'Multilayer'.
   You must select an implant type for the restoration type 'Abutment'.
5. Optional: In the step menu, click on the step *"Select Milling Device"* to change the current milling unit.
6. Confirm the settings by clicking *"Ok"*.
   Tip: If you click on *"Cancel"* the restoration will not be created and the program will return to the odontogram.
7. If necessary, create further restorations.

Bridge restoration

✓ You have selected the restoration type *"Bridge Restoration"*.

1. Determine the restoration type and the design mode for the abutment teeth as described in the section ADMINISTRATION phase [→ 68] .
2. Select the positions of the abutment teeth of the bridge.
   ↳ The selected teeth are marked.
3. Determine the restoration type and the design mode for the intermediate teeth.
   ↳ The selected teeth are marked.
4. In the step menu, click on the step *"Select Material"* to select the manufacturer and the material.
5. Optional: In the step menu, click on the step *"Select Milling Device"* to change the current milling unit.
6. Confirm the settings by clicking *"Ok"*.
   Tip: If you click on *"Cancel"* the restoration will not be created and the program will return to the odontogram.
7. If necessary, create further restorations.

Editing the restoration

You can edit previously created restorations.

1. Click on the restoration in the object bar.
2. Select the *"Edit Restoration"* step.
3. To change the restoration type and the design mode, proceed as when creating a new restoration.
   Important: To do this, click on the restoration concerned in the tooth model!

4. Confirm your changes by clicking the *"Ok"* button.

Selecting the scanbody type (only for abutments)

You can select the desired scanbody type in this step.

➢ Click on the desired scanbody type.

Selecting material for the veneering structure

You can select the desired material for the veneering structure in this step.

➢ Click on the desired material.

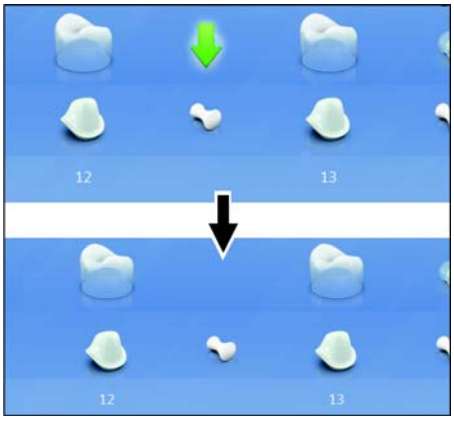
Selecting material for the framework

You can select the desired material for the framework in this step.

➢ Click on the desired material.

Type of multilayer construction

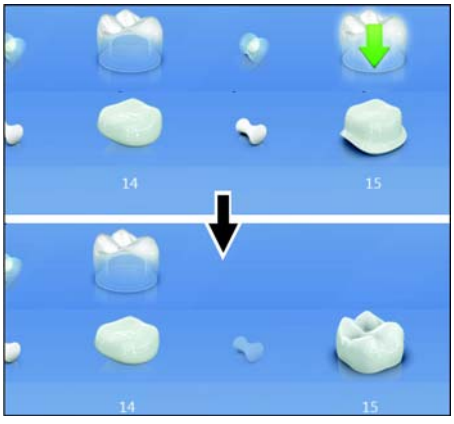
In the *"Multilayer Definition"* step, you can define the type of multilayer construction. The veneering structure and the framework structure are offered separately.



Separating the veneering structure

➢ Click on the connector symbol with the left mouse button at the separating positions.

↳ The connector symbol is removed and the veneering structure is separated.



Creating a full-format framework element

➢ Click on the element from the veneering structure with the left mouse button at the position of the tooth.

↳ The element is removed and a full-format framework element is created.

Abutment-carrying multilayer bridges

Abutment-carrying multilayer bridges are created in the same way as multilayer bridges.

You must define:

- On which teeth the abutments are located
- At what point the multilayer pontics are located

Abutment-carrying bridges can only be created on abutments. Abutment-carrying bridges cannot be created on abutments and blunt elements.

Partial reductions or individual veneering elements cannot be used for abutment-carrying bridges.

Finishing the ADMINISTRATION phase

✓ All restorations to be created are defined.
✓ The *"ACQUISITION"* phase is can be selected.
➢ Click on the *"ACQUISITION"* phase.

or

➢ Click on the double arrow.
↳ The program switches over to the *"ACQUISITION"* phase.

7.3 ACQUISITION phase

7.3.1 Image catalogs with CEREC Bluecam

Overview

In the *"ACQUISITION"* phase, three image catalogs are available as standard:

- Lower Jaw

- Upper Jaw

- Buccal

In addition, further image catalogs can be shown:

- BioRef Lower (Lower jaw)
- BioRef Upper (Upper jaw)
- BioCopy Lower (Lower jaw)

- BioCopy Upper (Upper jaw)
- Gingiva Mask Lower Jaw (Lower jaw)
- Gingiva Mask Upper Jaw (Upper jaw)

Opening the image catalog

1. Click on the icon of the desired image catalog.
2. Move the mouse cursor to the bottom edge of the screen.
   ↳ The active image catalog is opened, the individual acquisitions are visible.

7.3.1.1 Working with the image catalog

In the image catalog all acquisitions are shown respective to their regions.

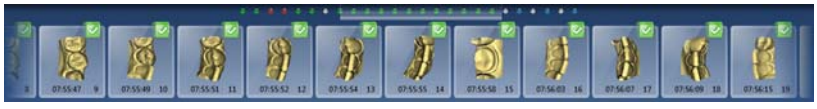
The first acquisition of an image catalog is called the reference acquisition and is marked with a dot (flag in the upper right-hand corner of the single image).

The acquisitions are marked as follows:

Symbol	Meaning
Green flag with check mark	Reconstructed / overlapped images
Green flag with dot	Reference optical impression
Blue flag	Reconstruction / overlapping attempt still in progress.
Red flag with exclamation mark	Reconstruction / overlapping failed.
No flag	Hidden images

If you position the mouse over an acquisition, it will be displayed in the camera view and highlighted in the 3D preview.

Scrolling through the image catalog



For each acquisition, a colored dot will be shown at the top of the image catalog.

Color	Meaning
Green	Calculated / overlaid images
Blue	The attempted calculation / overlay is still being processed
Red	Calculation / overlay failed
White	Hidden images

If the acquisitions can no longer be displayed in full in the image catalog, a scroll bar appears. You can use it to scroll through all acquisitions.

1. Click on the scroll bar and press and hold the mouse button.
2. Slide the scroll bar to the right or left.

Selecting images

➢ Click on the acquisition with the left mouse button.
Several images can be selected.
↳ The images are now selected.

Moving acquisitions

You can move acquisitions to other image catalogs using drag & drop.

1. Click on marked acquisitions and keep the mouse button pressed.
2. Drag your selection to the icon of the desired image catalog.
   ↳ The program will ask whether you want to move or copy the acquisition.
3. Select *"YES"* to copy the acquisition or *"NO"* to move it. *"Cancel"* can be used to cancel the operation.
   ↳ The acquisition will be ready for use in the corresponding image catalog.

Tip: You can copy or move all of the acquisitions contained in an image catalog. Simply click on the image catalog with the left mouse button and drag it to any other previously created folder.

Hiding images

➢ Click an acquisition with the right mouse button.

↳ The acquisition is shown in gray.
The acquisition is no longer used for the 3D preview and virtual model creation.

You can make the acquisitions visible again by following the same process.

If the *"Ignored"* filter is active, the acquisition remains visible in the image catalog.
If the *"Ignored"* filter is deactivated, the acquisition is hidden (see Command filter [→ 74]).

Select command

The *"Select"* command enables you to:

- select all images
- void the selection
- invert the selection

1. Click the *"Select"* button in the image catalog.
2. Click the appropriate button.

Edit command

The *"Edit"* command enables you to:

- copy
- cut
- insert
- delete
- hide
- display

1. Select the acquisitions you want to edit.
2. Click the *"Edit"* button in the image catalog.
3. Click the appropriate button.

Command Filter

The *"Filter"* command enables you to:

- Switch the display of hidden acquisitions on/off
- Show or hide discarded acquisitions (offsetting/overlaying not possible)

Command	Description
"Ignored" (active)	Hidden acquisitions are displayed.
"Rejected" (active)	Rejected acquisitions are displayed.

1. Click the *"Filter"* button in the image catalog.
2. Click the appropriate button.

7.3.1.2 Adding image catalogs

Using the *"Add Catalog"* button, you can create additional image catalogs in the page palette.

1. Click the button marked *"Add Catalog"* in the page palette.
   ↳ The possible image catalogs are offered.
2. Click on the required image catalog.

↳ The image catalog is displayed next to the standard image catalogs.

7.3.1.3 Options

In the page palette, the *"Options"* button enables you to:

- Buffer the acquisition sequence (quadrant)

- Merge the first and second acquisition sequences (quadrants)

- Activate first acquisition sequence

- Change to the *"Impression Scan"* mode

Command	Description
"Add Quadrant"	• Buffer the first acquisition sequence (quadrant). • Subsequently, another acquisition sequence can be taken.
"Merge Quadrants"	• The current acquisition sequence is merged with the buffered sequence.
"Change Quadrants"	• Activate the first acquisition sequence in order to add other images. The second sequence is saved temporarily automatically.

1. Click the button marked *"Options"* in the page palette.
2. Click the appropriate button.

7.3.1.4 Recycle bin

Removing acquisitions

1. Select the acquisitions you want to remove.
2. Click on the *"Edit"* button.
3. Click on the *"Delete"* button.

or

➢ Grab the image with your mouse and move it using drag & drop to the recycle bin.

↳ The acquisition is sent to the recycle bin.

Tip: You can move the last acquisition to the recycle bin by right-clicking the image catalog icon.

Opening the recycle bin

In the recycle bin, you will see the acquisitions removed from the currently active image catalog.

1. Click on the icon of the image catalog, for which you wish to open the recycle bin.
2. Click on the icon of the recycle bin.

↳ The recycle bin for the active image catalog is displayed.

Reusing acquisitions from the recycle bin

➢ Grab the image with your mouse and move it using drag & drop to the desired folder.

Tip: If you show/hide acquisitions in the recycle bin, they will be automatically moved back to the image catalog.

7.3.2 Image catalogs with CEREC Omnicam

In the ACQUISITION phase, three image catalogs are available as standard:

- Lower Jaw
- Upper Jaw
- Buccal

In addition, further image catalogs can be shown:

- BioRef Lower (Lower jaw)
- BioRef Upper (Upper jaw)
- BioCopy Lower (Lower jaw)
- BioCopy Upper (Upper jaw)
- Gingiva Mask Lower Jaw (Lower jaw)
- Gingiva Mask Upper Jaw (Upper jaw)

For each of these image catalogs, only one acquisition is saved in the corresponding image catalog.

Opening the image catalog

1. Click on the icon of the desired image catalog.
2. Move the mouse cursor to the bottom edge of the screen.
   ↳ The active image catalog is opened, the individual acquisitions are visible.

Deleting acquisitions

If an acquisition is not suitable, you can delete it. You can then execute a new acquisition for the corresponding image catalog.

➢ Grab the image with your mouse and move it to the shredder using drag & drop.

↳ The image is deleted.

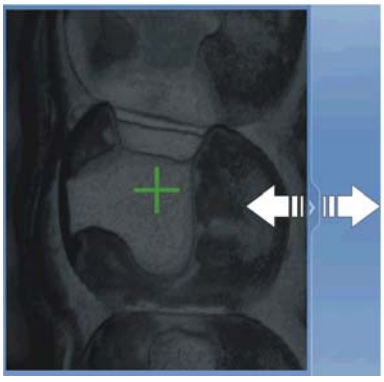
7.3.2.1 Adding image catalogs

Using the *"Add Catalog"* button, you can create additional image catalogs in the page palette.

1. Click the button marked *"Add Catalog"* in the page palette.
   ↳ The possible image catalogs are offered.
2. Click on the required image catalog.

↳ The image catalog is displayed next to the standard image catalogs.

7.3.3 Camera view



Change window size

You can adjust the size of the camera view proportionally.

1. Click the arrow at the right edge with the mouse and hold down the mouse button.
2. Drag the camera view to enlarge or reduce it.

Height and intensity image

Acquisitions from the image catalog can be displayed as height or intensity images.

Height image

Intensity image

✓ The camera is switched off.

1. Click on the icons to switch between the height and intensity image.
2. Position the mouse cursor over an acquisition in the image catalog.
   ↳ The acquisition is shown in the camera view of the selected layout.

7.3.4 3D Preview

In the default setting, the data are displayed from the occlusal direction in the 3D preview.

You can freely select the viewing direction of the virtual model in the 3D preview window by using the mouse.

Rotating a 3D preview

1. Click on the 3D preview with the left mouse button and hold it down.
2. Move the mouse.

↳ The 3D preview is rotated.

Moving the 3D preview

1. Click on the 3D preview with the right mouse button and hold it down.
2. Move the mouse.

↳ The 3D preview is moved.

Zooming into/out of the 3D preview

1. Click on the 3D preview with the middle mouse button and hold it down.
2. Move the mouse up or down as desired.
   ↳ The 3D preview is enlarged or reduced.

7.3.5 Taking the scan

7.3.5.1 CEREC Bluecam

7.3.5.1.1 Switching CEREC camera on/off

The CEREC camera is turned on automatically when you switch to the acquisition phase. If it is not used for some time, it will shut down.

➢ Click the camera icon to switch the CEREC camera on or off.

7.3.5.1.2 Camera support

Using the camera support gives you the following advantages:

- You obtain acquisitions free of motion blurring.
- You avoid damage to the prism.
- You avoid touching the prepared tooth.

⚠ CAUTION

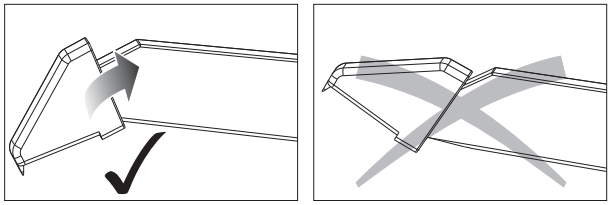
Using the camera support

Clean the camera support by wiping or spraying it with disinfectant prior to use. Designed for one-time use only.

7.3.5.1.3 Preparing the optical impression

Pushing on the camera support

➢ Push the camera support onto the camera as illustrated.



Pushing on the camera support

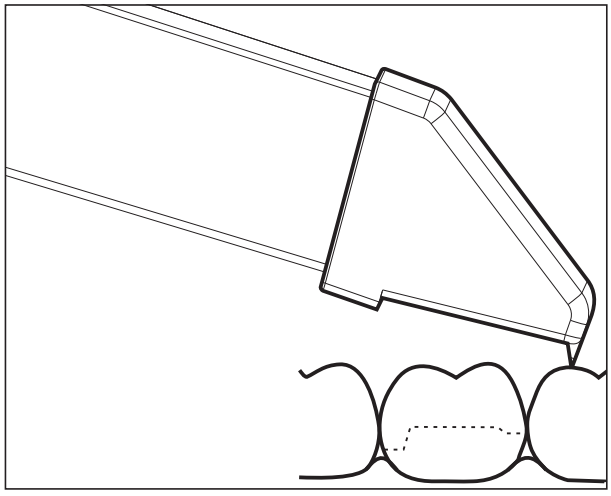
Positioning the camera

⚠ CAUTION

Hot surface!

The prism of the camera is preheated in the camera holder. The surface temperature may be as high as 50°C. This may cause an unpleasant heat sensation on contacting a person's skin or mucous membrane. These temperatures will not damage anyone's skin or mucosal membrane.

1. Position the camera over the teeth to be scanned.



Supporting the 3D camera

2. Support the camera with the front part of the camera support on a tooth so that you can hold it quietly during the acquisition phase.

NOTICE

Powder on the surface of the prism

If the prism touches powdered surfaces, then powder usually remains on the prism surface and generates dark spots in the image.

The powder can be wiped off from the prism with a soft cloth.

7.3.5.1.4 Acquire with the CEREC camera

With the CEREC camera you can switch between two acquisition modes:

- manual
- automatic

After being switched on, the CEREC camera is set to automatic acquisition control.

NOTICE

Image brightness

The image brightness during the scan is controlled automatically, so that there is always optimum image brightness, largely independent of the distance between the CEREC camera and the tooth.

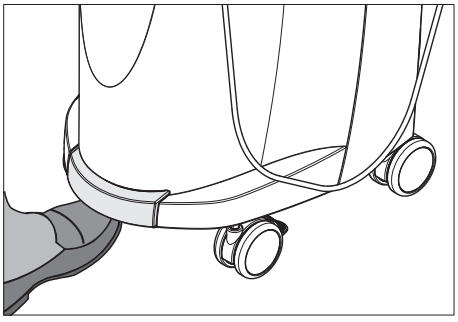
The surroundings of the tooth to be acquired should be as weakly illuminated as possible. Avoid any type of external light. Switch off the dental light.

Changing from automatic to manual acquisition control

You can change from automatic to manual acquisition control.

✓ You are now using automatic acquisition control.

1. Place the cursor on the camera icon.



2. Press the foot control upward and keep it pressed.
   ↳ A green cross appears in the live image. Manual acquisition control is active.

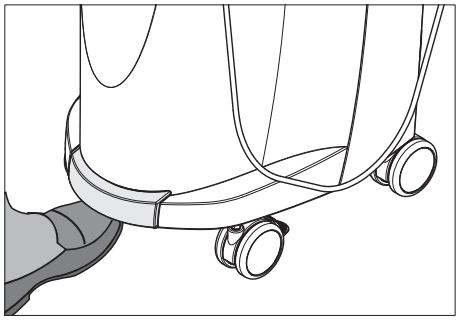
You can exit manual acquisition control in the same way.

Automatic acquisition control

To help avoid blurred acquisitions caused by withdrawing the CEREC camera too early, an acoustic signal sounds as soon as the acquisition is completed. Make sure that neither the Windows volume control is at the lowest position nor “Sound off” is activated.

1. Position the CEREC camera above the powdered preparation as described.
2. Once a sharp acquisition is possible, images are generated and transmitted to the 3D preview automatically.
   Observe undercuts on all lateral edge lines of the preparation.
3. Move the camera until all required images have been acquired.
   ↳ The model is restored automatically in the 3D preview during the acquisition.
4. Then check the above points once again. Take care that the optical impression is **sufficiently bright**, **sharp** and **free of motion blurring**. If you do not observe these points, one of them may have a negative effect upon the subsequent procedure.

If you click the scan icon of the upper jaw, lower jaw or buccal registration, you can take additional acquisitions of the upper jaw, lower jaw or buccal registration.



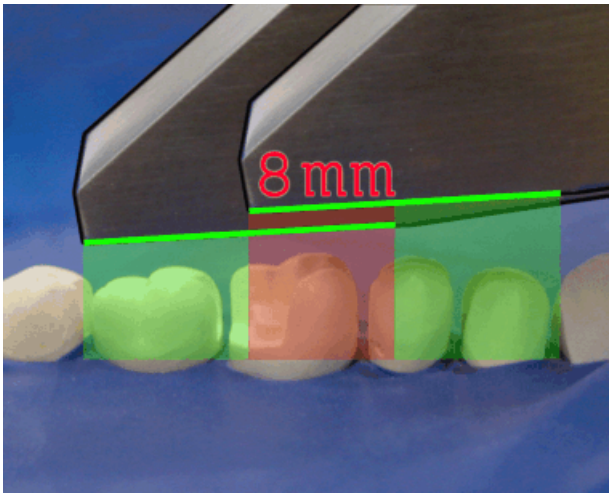
Manual acquisition control

1. Press the foot control upward and keep it pressed.
   - A live video image appears with a green cross in the camera view.
2. Release the foot control.
   - The acquisition is automatically transferred to the 3D preview.
3. Additional acquisitions can be created by repeating steps 1 and 2.
   - The model is restored automatically in the 3D preview during the acquisition.
4. Then check the above points once again. Take care that the optical impression is **sufficiently bright**, **sharp** and **free of motion blurring**. If you do not observe these points, one of them may have a negative effect upon the subsequent procedure.

If you click the scan icon of the upper jaw, lower jaw or buccal registration, you can take additional acquisitions of the upper jaw, lower jaw or buccal registration.

7.3.5.1.5 Supplementary optical impressions

Acquiring the neighboring teeth as well



Overlap area 8mm

If the neighboring teeth are to be completely imaged as well, then the image catalog can be extended by acquisitions of these teeth. The overlap area of two neighboring acquisitions must be at least 8 mm.

7.3.5.1.6 Angled optical impressions

Additional angled optical impressions

Additional angled acquisitions are possible. They can be used to acquire regions that are concealed in the occlusal acquisition direction, or to acquire steep walls in more favorable angles.

IMPORTANT
Proximal undercuts
Proximal undercuts may make it impossible to seat an inlay.

The maximum permissible tilt angle for capturing an additional optical impression of the same area is 20°.

7.3.5.1.7 Optical impressions for quadrant restoration

For quadrant restoration it is recommended to acquire the prepared teeth as well as an unprepared neighboring tooth in each case. It can be covered by capturing several supplementary optical impressions.

7.3.5.1.8 Acquiring end teeth

End tooth at the distal margin

When end teeth are restored, the end tooth should lie at the distal margin of the image field.

7.3.5.1.9 Acquiring an impression

Preparing an impression

✓ In certain circumstances, the impression must be cut free somewhat, so that the definition of the image of the CEREC camera is sufficient.

➢ If scannable silicon is not used, provide the area to be acquired with a matt finish to prevent reflections. For this purpose, use CEREC Optispray.

Acquiring an impression

1. Click on the icon of the desired image catalog.
2. Open the image catalog.
3. Click on the *"Advanced"* button.
4. Click on the *"Impression Scan"* button.
5. Start the acquisition procedure.
   ↳ In the 3D preview, the model is displayed on both sides. The model preview is displayed in yellow, whereas the preview of the casting itself is shown in green.

As long as *"Impression Scan"* mode is active, acquisitions are inverted while creating the virtual model. *"Impression Scan"* mode is available for all image catalogs.

The various catalogs do not need to be acquired in the same mode.

7.3.5.2 CEREC Omnicam

7.3.5.2.1 Camera warm-up time

When switching on the system, the camera needs to warm up for 15 - 20 minutes. If the sapphire glass of the Omnicam is not sufficiently warm, it

may steam up during the acquisition. As such, it is not possible to perform the acquisition.

Following use, always position the Omnicam on the heater plate.

From CEREC software version 4.0.4 and unit serial number 121 001, you can now set the end temperature to which the camera heater warms the Omnicam mirror sleeve.

1. In the software, navigate to the system menu, and click on the *"Configuration"* button.
2. Click on the *"Devices"* button.
3. Click the *"Omnicam"* button.
4. Click the *"Camera Heater Settings"* button.
5. Use the slider to adjust the temperature.

7.3.5.2.2 Mode

You have a choice between the Measure (3D) and Movie (2D) modes and between intraoral acquisitions and extraoral acquisitions.

1. Go to phase *"ACQUISITION"*.
2. Click on the *"Mode"* button on the right side of the screen.

7.3.5.2.2.1 3D acquisition mode

1. Click on the *"Mode"* button.
2. Click on the Measure (3D) button.
3. Acquire the 3D model as described in the chapter on Directing the camera [→ 84] .

7.3.5.2.2.2 2D film mode

Video recording

Using the video mode, you can record patient situations and play them back.

1. Click the *"Mode"* button.
2. Click the *"Movie (2D)"* button.
   - In the camera view base board, a red button appears.
3. Click on the red button in the camera view base board.
   - The video mode starts.
   - During the acquisition, a red dot with a letter R appears in the top left corner of the camera view. The dot indicates that a recording is being taken.
4. Record the video with the CEREC Omnicam.
5. End the recording by clicking on the red button in the camera view base board with the cursor.

The video recording is automatically deleted if you switch to the *"MODEL"* phase.

Deleting an existing video

Only one video is possible per patient. The existing video must therefore be deleted before a new one can be recorded.

✓ A video recording exists.

✓ You are in the Movie (2D) acquisition mode.

➢ Click on the *"Recycle Bin"* button in the camera view base board.

Playing back a video

You can play back, rewind or fast forward the video using the button in camera view.

7.3.5.2.2.3 Switching between modes

You can use the *"Mode"* button to switch between the acquisition modes.

7.3.5.2.3 Directing the camera

The CEREC Omnicam acquires images which are used during the ongoing measurement in spatial relation to each other (image registration).

During the acquisition and then during the ongoing registration process, a distinctive sound can be heard.
If the registration cannot be implemented, the acquisition flow is suspended. You are informed of this by means of a sound. This is different to the sound emitted during successful acquisition. You can adjust the volume in configuration.

IMPORTANT

Registration error

Should a registration error occur, you must return to another acquired point.
To start with, practice this procedure on the model and then on intraoral areas.

➢ Move the CEREC Omnicam to a position where a successful acquisition was taken. A point that has already been acquired in the occlusal area is best.

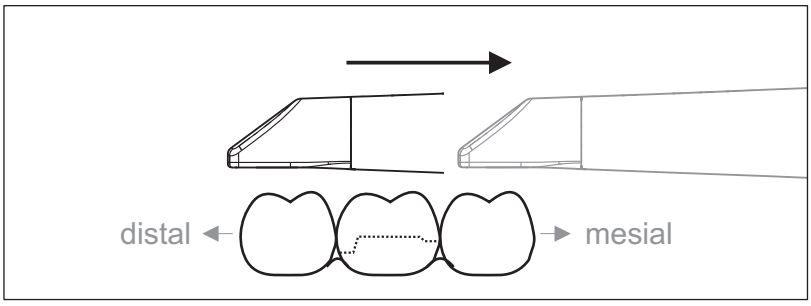
↳ You will be able to hear the sound for registered acquisitions.

➢ Continue the acquisition.

Divide the acquisition into four consecutive sequences:

1. Occlusal
2. Buccal
3. Lingual
4. Proximal

7.3.5.2.3.1 Occlusal scan

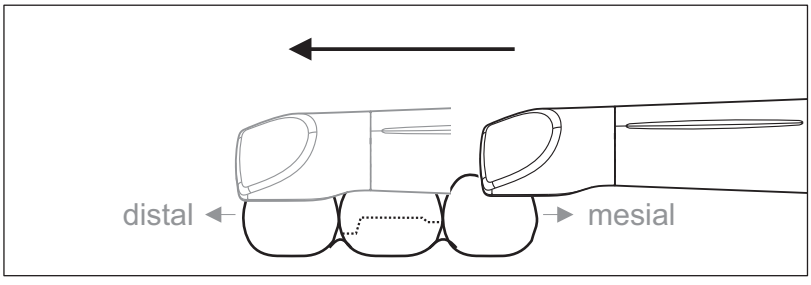


Important: Ensure that the distance between the output window of the CEREC Omnicam and the scanned surface is observed.
The distance must be between 0-15 mm (ideally: 5 mm). If the distance is too great, no data will be obtained.

1. Move the CEREC Omnicam to the starting position. For this purpose, the CEREC Omnicam is in the occlusal view of the tooth, which is next to the prepared tooth in the distal direction.
2. Scan in the mesial direction. To do so, slowly move the CEREC Omnicam in the occlusal direction from the distal-positioned tooth over the prepared tooth to the mesial-positioned tooth.

With full jaw acquisitions, the scan sequence is different for the transition to anteriors. Scanning begins with the lingual and labial areas, before moving on to the incisors.

7.3.5.2.3.2 Buccal scan



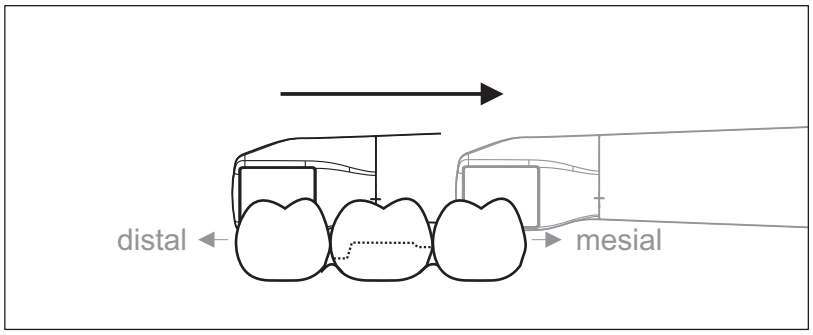
✓ The CEREC Omnicam is on the adjacent tooth, in the mesial direction to the preparation.

1. Rotate the CEREC Omnicam approximately 90° toward the buccal.
2. Guide the CEREC Omnicam over the entire buccal distance in the distal direction over the prepared tooth.
   With full jaw acquisitions, limit the buccal scan to no more than a quadrant.

Ensure that the CEREC Omnicam is held like a flute during buccal scans. Do not tilt it vertically to the direction of motion.

Tip: Practice guiding the camera below 90°.

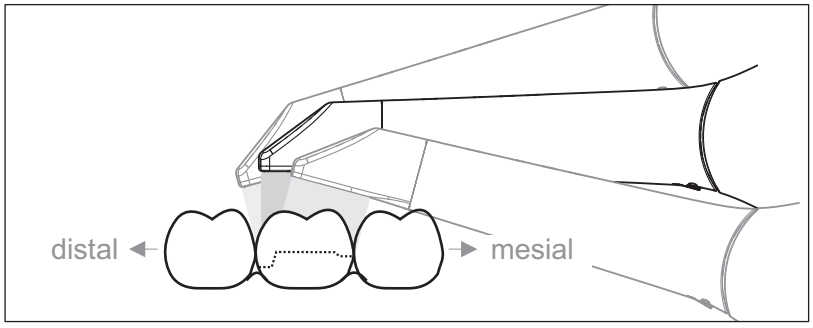
7.3.5.2.3.3 Lingual scan



✓ The CEREC Omnicam is on the tooth that is positioned next to the preparation in the distal direction.

1. Rotate the CEREC Omnicam by 90° in the buccal direction to the other side, to around 90° in the lingual direction.
2. Guide the CEREC Omnicam over the entire lingual distance in the mesial direction over the prepared tooth.

7.3.5.2.3.4 Approximal surface scan



Scan the approximal surfaces of the prepared tooth.

➢ Move the CEREC Omnicam in the occlusal direction to the prepared tooth. Acquire the approximal surfaces in the distal and mesial direction by using a wave motion in the occlusal direction over the prepared tooth.
To do so, tilt the surface by 15° in the distal and mesial direction to gain a better view of the approximal contacts.

7.3.5.2.3.5 Buccal registration

A buccal registration can be used to establish contact with the antagonist.

✓ The jaw with the preparation is scanned.

1. Scan the occlusal and buccal view of the antagonist (see the section Occlusal scan [→ 85] and Buccal scan [→ 85]).
2. Perform a buccal scan of the bite block prior to completing the registration.

7.3.5.2.3.6 Acquisition in the anterior region

Ensure that the CEREC Omnicam is tilted correctly, particularly in the anterior region.

As a general rule, swivel from vestibular to oral.

Tip: Be sure to thoroughly practice passing over the incisal ridge.

If the data stream is interrupted at this point, proceed as follows:

1. Return to an occlusal surface of a premolar which has already been acquired.
2. Approach the anterior teeth again from this occlusal surface.

7.3.5.2.3.7 Completing measurements

✓ The acquisitions are complete.

1. Click on the *"Next"* button.
   - ↳ The virtual model is calculated and presented in color.
   - ↳ Gray sections highlight data material that is missing from the calculated model.
2. If data is missing from the preparation area, perform additional scans. Return to the *"ACQUISITION"* phase. Perform additional scans to complete the model structure.

7.3.5.2.4 Taking acquisitions with the CEREC Omnicam

⚠ CAUTION

Hot surface!

The output window of the CEREC Omnicam is preheated in the camera holder. When removing the CEREC Omnicam from its holder, the surface temperature of the mirror sleeve can be up to 51°C. This may cause an unpleasant heat sensation on contacting a person's skin or mucous membrane. These temperatures will not damage anyone's skin or mucosal membrane.

After removing the CEREC Omnicam from its camera holder, the temperature of the mirror sleeve drops within a number of minutes (< 5 minutes) to less than 43°C. The CEREC Omnicam is therefore suitable for use in the patient's mouth for an unlimited period of time.

At an ambient temperature from 30°C, only select the three lower heater settings.

NOTICE

Image brightness

The image brightness during the acquisition is controlled automatically, so that there is always optimum image brightness, largely independent of the distance between the CEREC Omnicam and the tooth.

The surroundings of the tooth to be acquired should be as weakly illuminated as possible. Avoid any type of external light. Switch off the operating light.

IMPORTANT
Do not use cotton rolls in the scan area Do not use any cotton rolls in the vicinity of the scan area. Should any pieces of cotton roll contaminate this area, the acquisitions will be inaccurate.

✓ The teeth are blow-dried

1. Change to phase *"ACQUISITION"*.
   ↳ The camera is ready for exposure.
   ↳ A live image appears which can be used to look around the patient's mouth.
2. Remove the CEREC Omnicam from its holder.
   ↳ As soon as the camera is pointed over a tooth or the gums, data acquisition begins. During the continuous data acquisition, a color 3D model is generated automatically on the screen.
   A white field indicates in which area data will be acquired. If the automatic data flow breaks off, the white field is lost and the audio signal changes. In this case, move the camera to any area which has already been acquired. The acquisition procedure continues.
3. Activate the foot control or point the camera cursor to the Omnicam icon in the bottom left corner to end the acquisition procedure.

Proceeding with the acquisition procedure

1. Activate the foot control or click on the Omnicam icon with the cursor.
   ↳ The acquisition procedure begins.
2. Proceed with the acquisition procedure as described above.

7.3.5.2.5 Cut out model areas

With the *"Cut"* function, you can cut out model areas. These can be areas in which parts of cotton rolls or cheeks were unintentionally acquired.

When performing this activity, be careful not to accidentally cut out any areas that e.g. are located behind the model or are otherwise cut away from the line.

✓ You are now in the ACQUISITION phase.

1. Click on the tool wheel.
2. Click on the *"Cut"* button.
   ↳ The cursor changes to a cross.
3. Begin the cut line with a double-click.
4. Click to set additional points.
5. Finish the cut by double clicking.
   ↳ The model area is cut out.
6. Click the *"Apply"* button to implement the change.

You can execute another scan of the area which you have cut out using the crop function. To do so, close the tool window, by clicking on the top right corner. You can refill the area with another acquisition.

Undo and reset

With the *"Undo"* button in the tools you can undo the last change made.

With the *"Reset"* button you can reset changes that were made with the tool.

7.3.5.2.6 Additional acquisitions

You can switch back from the DESIGN phase to the ACQUISITION phase and add additional acquisitions.

✓ You are now in the DESIGN phase.

1. Click on the ACQUISITION phase.
   ↳ The ACQUISITION phase opens. The image catalogs are locked.
2. Click the button marked *"Unlock"* in the side bar.
   ↳ The image catalogs are unlocked.
   ↳ You can take additional acquisitions.

7.3.5.3 inEos Blue

7.3.5.3.1 General

You have three modes for executing scans with inEos Blue:

- Grid scan
  – For big jobs with 9 or more units
  – Long, untoothed areas
- Free scan
  – For jobs comprising up to 8 units
  – For detail scans under various angles
- Rotational scan
  – For measuring single tooth stumps
  – For single restorations without consideration of the proximal contacts or the antagonist

You can execute several scan modes in sequence.

You can omit a scan mode if, for example, it is not suitable for your model.

Scan models

You can scan all materials that correspond to the following criteria:

- Non-reflecting
- Nontransparent
- No transparent parts
- Not highly absorbent
  (e.g. heavily colored plasters)

Unscannable materials generate artifacts in the image.

Tip: When using plasters that do not meet the above criteria, you must powder the affected areas. Otherwise the measuring accuracy will be impaired considerably.

The following are suitable for this purpose: CEREC Optispray (REF 61 44 179)

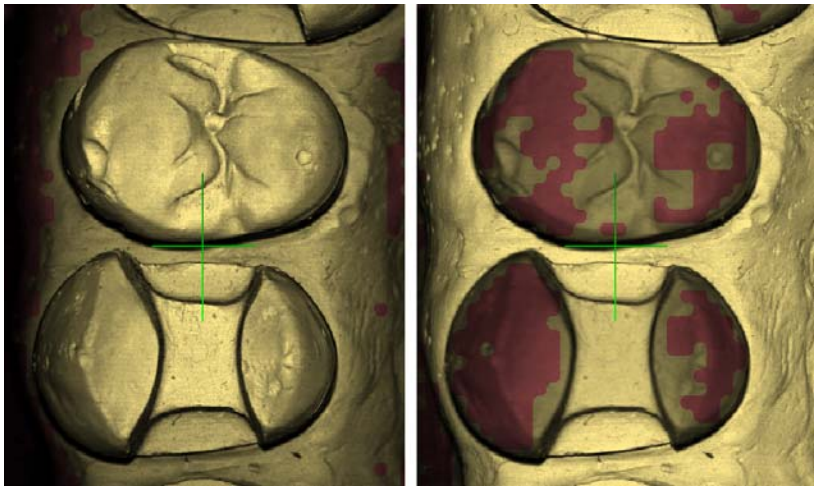
For scanning with inEos Blue, we recommend using CEREC Stone BC plaster (REF 62 37 502).

- When preparing saw-cut models, be careful not to mill off the single stump segments. Place the model next to the stumps so that the scanner can properly capture these areas.
- Create only a slight fluting below the preparation margin.

Focusing the image

➢ Turn the rotary buttons for height adjustment.
  ↳ The sharpness adjustment changes.

The image is then sharpened if the relevant areas are not red.



Left: Scan clear; Right: Scan blurred

Image blurred

If the image is blurred, the acquisition will not be reconstructed and will be marked with a red flag (see Working with the image catalog [→ 72]).

Sharpen the image and take a new scan.

Deleting images

You can delete completed scans by right-clicking on the active scan button (e.g. *"Preparation"*). Each further click deletes the last scan.

Overlap area during acquisition

If images are acquired via free scans, each image must overlap with the previous image. This overlap area must comprise roughly half of the image.

Overlapping insufficient

If the overlap with the previous scans is not sufficient, the software cannot assign the image. The error message *"The image cannot be registered!"* appears.

Select a section that has a larger overlap with previously acquired images or reduce the tilt.

Operating the foot control

You can use the foot switch instead of the start button of the inEos Blue.

7.3.5.3.2 Switching the inEos Blue on/off

The inEos Blue is turned on automatically when you switch to the acquisition phase. If the inEos Blue device is not used for a long time, it will switch itself off.

➢ Click on the inEos symbol to switch the inEos Blue device on or off.

7.3.5.3.3 Grid scans

- For big jobs with 9 or more units
- Long, untoothed areas

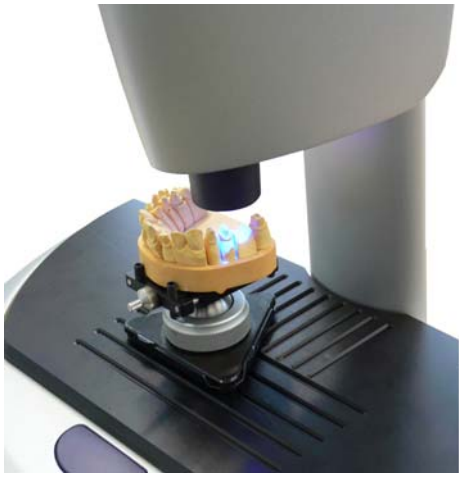
Preparing the model

1. Secure the model to the model holder included. The labial side faces the fixing screw.
2. Release the ball and socket joint.
3. Align the model:
   The model is horizontal and the front teeth stand parallel to a triangle side.
4. Remove the sliding block from the model holder.

Taking the scan

NOTICE
Do not damage the shifting plate
Do not apply any pressure to the model when it is located on the shifting plate. Doing so could damage the shifting plate.

Tip: Do not change the position of the ball-and-socket joint during acquisition.



1. Place the model holder on the shifting plate. The small balls must lodge in the longitudinal and transverse grooves. The tip of the model holder plate and the oral side of the model face the column of the inEos Blue.

2. Click the button for grid scans.
   ↳ A section of the model appears in the the live image.
3. Slide the model until you can begin scan acquisition on a distal side.
4. Focus the image by turning the rotary buttons for height adjustment, see Focusing the image.
   Do not touch the rotary buttons while the scans are being taken.
5. Single-click the Start button of the inEos Blue.
   ↳ The image is acquired.
6. Add additional scans from adjacent areas: Move the model in the desired direction by one stop position and repeat steps 4 to 5.

If you do not require any further grid scans, you can change to the next acquisition mode; see Free scans or Rotational scans.

Tip: If a bite registration is to be acquired, additional mesial and distal areas also must be scanned. These areas must not be concealed by the bite registration.

7.3.5.3.4 Free scans

You can use detail scans for example to detect undercuts which were not detected by the overview scans.

- For scans with up to and including 8 units
- For additional scans at different angles

Preparing the model

1. Press the triangular glide foot on to the bottom of the model holder until the glide foot clicks into place.
   ↳ The model holder can be moved into any position across the shifting plate.
2. Secure the model to the model holder included. The labial side faces the fixing screw.
3. Release the ball and socket joint.
4. Align the model:
   The model is horizontal and the front teeth stand parallel to a triangle side.

Taking the scan

The Free Scan mode offers a variety of options for image acquisition.

Acquisition with the Start button

Double-click the Start button	A single exposure will be acquired.
Single-click the Start button.	The crosshairs turn blue. The system will automatically acquire new images after you move the model or reset the image focus. If you want to interrupt the automatic scan, single-click the Start button of the inEos Blue. The crosshairs turn green. Use the Start button to acquire additional exposures. **Tip:** When taking detail scans, interrupt the automatic scan to continue at a different model location. This location must overlap roughly one half of the image previously scanned.

Acquisition with the foot switch

Actuate the foot switch once	A single exposure will be acquired. The model must be motionless and set in focus.
Press and hold down the foot switch	The crosshairs turn blue. The system will automatically acquire new images after you move the model or reset the image focus. If you want to interrupt the automatic scan, release the foot switch. The crosshairs turn green. You can acquire additional exposures by reactivating the foot switch. **Tip:** When taking detail scans, interrupt the automatic scan to continue at a different model location. This location must overlap roughly one half of the image previously scanned.

Taking the scan

1. Click the Free Scan button.
   ↳ A section of the model appears in the the live image.
2. Slide the model until you can begin scan acquisition on a distal side.
3. Focus the image with the rotary knobs for height adjustment; see Focusing the image.
4. Single-click the Start button of the inEos Blue.
   ↳ The first scan is taken and the crosshairs are displayed blue.
5. Add additional scans from adjacent areas: Move the model freely on the table until you have reached the next acquisition position. As soon as the model stops moving, the camera is automatically released. You can turn the model on the shifting plate by up to 30°.
   Tip: The new image must overlap approximately one half of the previous image. If necessary, you can turn the model by 180°.
6. Repeat step 5 until all of the required scans have been taken.

If you do not require any further free scans (including detail scans), you can change to the next acquisition mode; see Rotational scans.

Performing detail scans

You can acquire detail scans at any time during the free scan.

1. Tilt the model no more than 30° in the desired direction.
   Tip: You can turn the entire model on the shifting plate by 180° if necessary.
2. Double-click the Start button of the inEos Blue.
   ↳ An image is acquired.
3. Repeat steps 1 and 2 until all of the required scans have been taken.

Tip: Align the scanned area as for the overview scan. Tilt the model holder to an angle of up to 30°.
Multiple scans are required for angles larger than 30°. Start with a small angle and execute further scans at steeper angles directly afterward.
Do not rotate the model. The lateral alignment must remain the same as for the overview scans.

7.3.5.3.5 Rotational scans

Use the rotational scans to acquire single tooth stumps from all sides.

- For the surveying of single tooth stumps
- For single restorations without consideration of the proximal contacts or the antagonist

Preparing the model

1. Move the model holder on the rotation mouse to the 0° position.
2. Secure the object (e.g. a tooth stump) with the fill material in the center of the model holder. The longitudinal alignment of the object must correspond to the model holder's axis of rotation.
3. Tilt the model holder at an angle which enables the undercuts to be recorded (standard: 60°).

Taking the scan

1. Click the button for rotational scans.
2. Slide the rotation mouse on the shifting plate until the entire object is displayed in the image field.
   The cable of the rotation mouse should point to the right or left, and not to the front or rear.
3. Rotate the rotation pot until the object remains in the image field in every position.
4. Focus the image with the rotary knobs for height adjustment; see Focusing the image.
5. Click the Start button of the inEos Blue.
   ↳ 8 single scans are taken in rapid succession.

7.3.5.3.6 Acquiring a buccal registration

✓ You have selected the buccal image catalog.

✓ The image catalogs of the jaw and of the opposite jaw contain images with buccal sections at a position next to or directly on the preparation.

✓ In the buccal image, both jaws must be moved to the centric jaw relation and an exposure taken that records both jaws at the same time.

✓ If possible, you can exit the model in the Articulator. Otherwise, it is recommended to fix the model, e.g. with wax, and manually hold it under the camera while supporting the model on the shifting plate.

1. Select the *"Table free"* exposure mode.
2. Position the model underneath the camera with the anterior teeth pointing towards you.
3. Ensure that one jaw is located in each half of the image.
4. Focus the image.
5. Trigger an exposure, preferably using the foot switch. In most cases, one exposure is sufficient.

7.3.5.4 Finishing the phase

✓ All necessary acquisitions are available (jaw, possibly opposing jaw, and buccal bite acquisition).

✓ The *"MODEL"* phase is can be selected.

➢ Click on the *"MODEL"* phase.

or

➢ Click on the double arrow.

↳ The program switches over to the *"MODEL"* phase.

7.4 MODEL phase

In the *"MODEL"* phase, the virtual models are reconstructed based on the acquired image catalogs.

If you would like to edit the model, change to the *"Edit Model"* step.

The *"Edit Model"*, *"Bite Registration"* and *"Set Model Axis"* refer to the entire model (upper and lower jaw).
All other steps in the *"MODEL"* phase refer to the restoration currently selected. These steps must be performed individually for each restoration.

7.4.1 Editing the model

In the *"Edit Model"* step, you can work with the following tools:

- Form
- Cut
- Replace
- Reset

The use of the individual tools is described in the section "Page palette".

7.4.2 Buccal registration

In this step, you see the virtual models of the jaw, opposing jaw, and the buccal acquisition. The buccal acquisition is placed in the center between the lower jaw and upper jaw.

In the *"Bite Registration"* step, you can work with the following tools:

- Drag Buccal
- Flip Buccal Impression

The use of the individual tools is described in the section Page palette .

For further information on the *"Flip Buccal Impression"* function, see the section Buccal registration [→ 97].

Rotating the lower and upper jaw

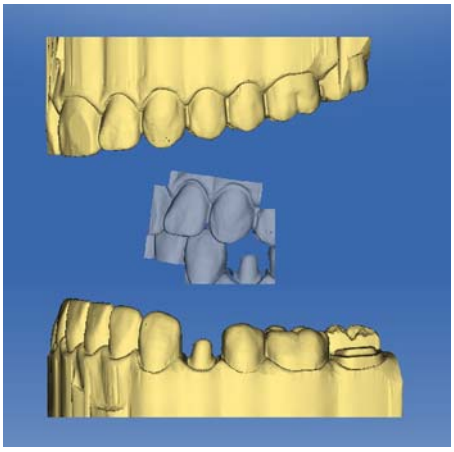
➢ Click in the blue area with the left mouse button and hold the button down.

↳ The lower jaw and upper jaw can be rotated about the vertical axis simultaneously.

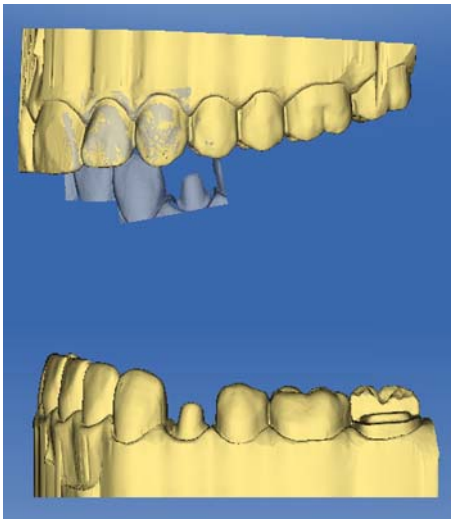
➢ Click on the lower jaw or upper jaw with the left mouse button and hold the button down.

↳ The jaws can be freely rotated individually.

Registering the buccal acquisition on the lower jaw and upper jaw



1. Rotate both models so that you can see the overlap area of the buccal acquisition and of the upper jaw and lower jaw.
2. Now drag the buccal acquisition to the corresponding area of the upper jaw with the mouse and let go of the mouse button (drag & drop).



↳ The buccal acquisition automatically registers itself on the upper jaw. If the registration was successful, this will be indicated by a "leopard pattern". If the registration was not successful, the buccal acquisition returns to its original position. In this case, you must repeat the drag&drop procedure in order to find a better correlation surface.

3. Now click on the buccal acquisition once again and drag it onto the appropriate area of the lower jaw (drag & drop).

↳ If the registration was successful, this will be indicated by a "leopard pattern". If the registration was not successful, the buccal acquisition returns to its original position. In this case, you must repeat the drag&drop procedure in order to find a better correlation surface.

It is irrelevant whether you drag the buccal acquisition onto the lower jaw or onto the upper jaw first.

Rotating the buccal image

In some cases, the buccal acquisition may be displayed upside down in relation to the lower jaw and the upper jaw. Proceed as follows in such cases:

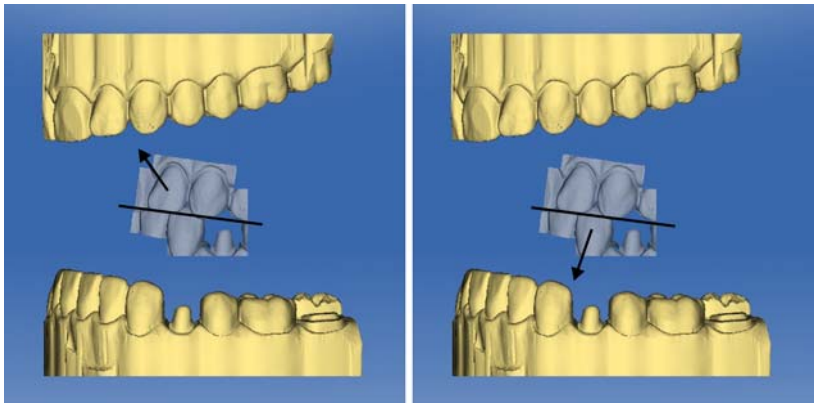
➢ Click on the upper area of the buccal image and drag it onto the lower model.

or

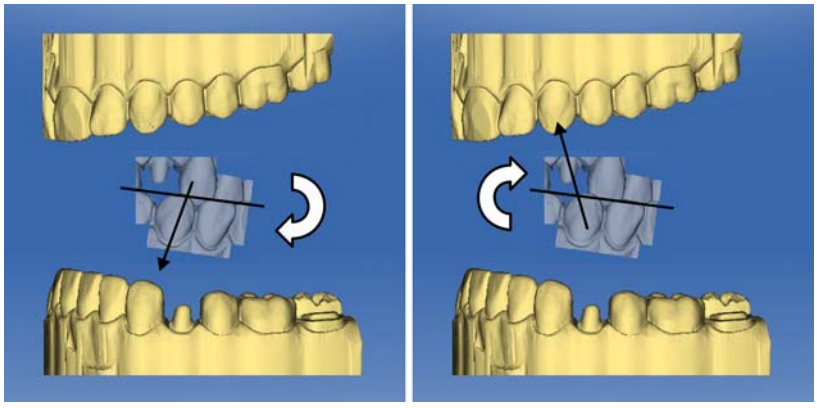
➢ Move the mouse via *"Tools"* onto the *"Bite Registration"* button and activate the *"Flip Buccal Impression"* command.

↳ The buccal acquisition will automatically flip, and you can then register it on the jaw using the drag & drop technique.

This works in the same way vice versa, i.e. if you click on the lower area of the buccal image and then drag it onto the upper model.



The buccal image is then displayed right side up. Registration is possible without rotation.



The buccal image is then displayed upside down. When you begin the registration, the software detects this and automatically flips the image right side up.

Moving to the next step

✓ The step is completed.

➢ Click the double arrow to proceed to the next mandatory step.

or

➢ Click on the restoration icon in the object bar to start the preparation of this restoration immediately.

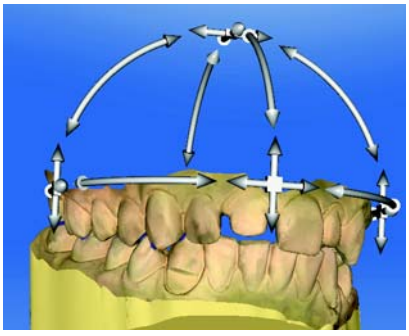
7.4.3 Correcting occlusion

You can align buccal registration manually in this step.

In the step *"Align jaws"*, you can work with the following tool:

- Move Jaw

Positioning the upper jaw



➢ Left-click on an arrow symbol and hold the button down.
  ↳ You can displace or rotate the upper jaw in the corresponding direction.

Changing axes

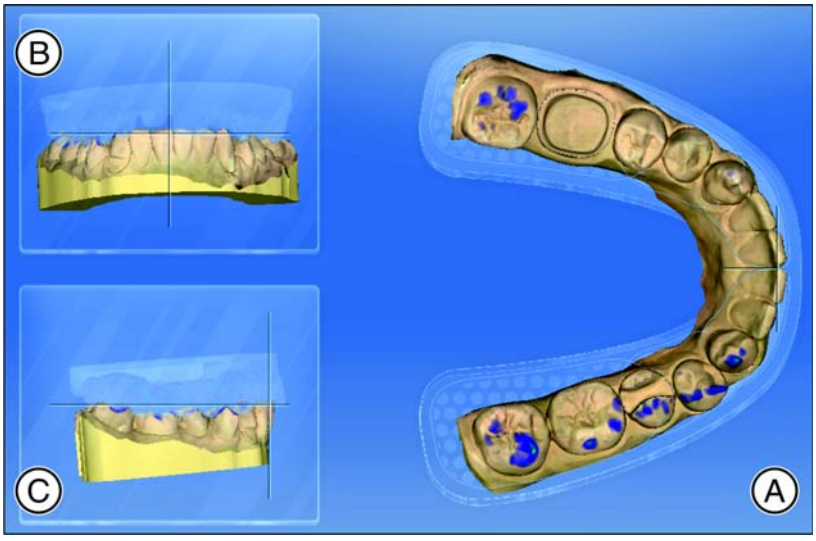
➢ Right-click on an arrow symbol and hold the button down.
  ↳ You can change the axis on which the upper jaw is rotated or shifted.

7.4.4 Settling tool

In this step, you can semi-automatically rework the buccal registration. This may be necessary in the case of intraoral scanposts.

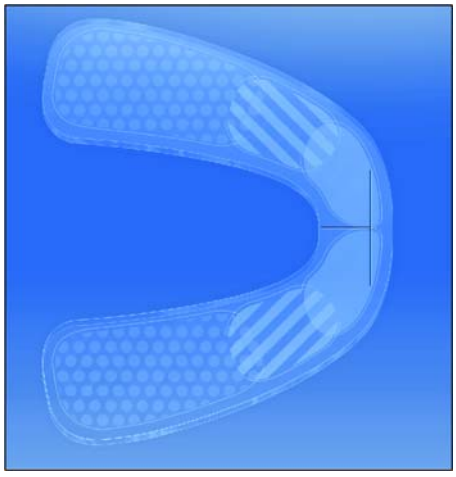
1. Using the brush tool, select areas that are to be omitted in calculating contacts (e.g. scanposts).
2. Click on *"Compute"*.
3. Check the new contact situation.

7.4.5 Set model axis



Set the axes for model alignment. Please ensure a consistent representation here.

This alignment is required to create optimal view options and initial suggestions.



1. Align the model to the orientation of the jaw (**A**). Each tooth must be in its respective quadrant. Align the incisors based on the displayed center line.
2. Align the incisal edges along the displayed line (**B**). If necessary, rotate the model by clicking on the display, holding the mouse button down and dragging the model.
3. Align the model for the occlusion plane (**C**). If necessary, tilt the model by clicking on the display, holding the mouse button down and dragging the model.

7.4.6 Trimming the preparation

In the *"Trim Area"* step you can hide image regions outside of the preparation, e.g. mesial and distal neighbors.

If the virtual model is trimmed in this design step, both the sides and the bottom are subsequently displayed as closed.

In the *"Trim Area"* step, you can work with the following tool:

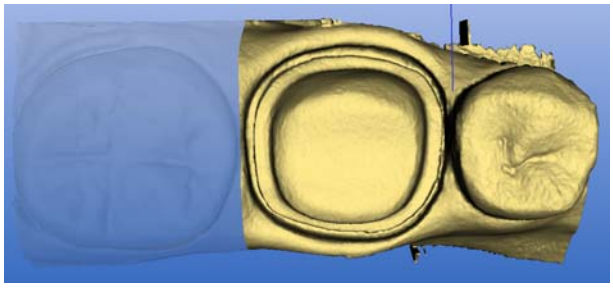
- *"Trim"*

The use of the tool is described in the Page palette section.

Trimming image regions

You can trim several image regions.

1. Rotate the model to a perspective in which you can see all areas that you want to trim. The model cannot be rotated while you are drawing the line.
2. Double click in any location to set the starting point of the trim line.



Distal neighbor hidden

3. Click to set further points of the line, e.g. in the interdental space.

4. Double click in any position to end the line. Ensure that the closing end of the line does not cut any areas of the model that you want to keep.
   ↳ The smaller image region to the side of the line is hidden.
   Tip: If the wrong image region is hidden, you can switch to the other image region by double-clicking the hidden region.

7.4.7 Entering the preparation margin

In the *"Draw Margin"* step, you can work with the following tool:

- Margin

The use of the tool is described in the section Page palette .

General information

As you are entering the preparation margin, you can rotate the 3D model. Be sure to hold down the left mouse button for a long time. A short click adds a point to the preparation margin.

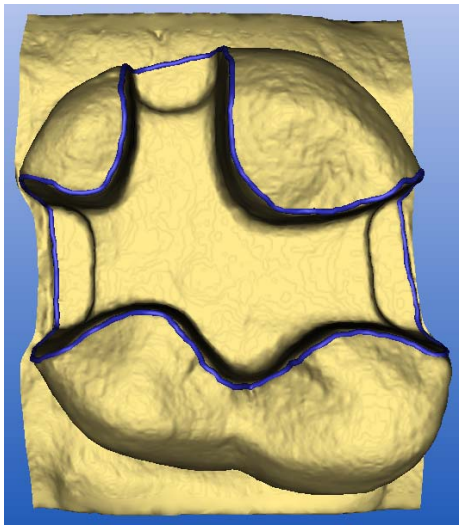
The preparation margin must always form a closed line.

You can edit the finished preparation margin after entering the last line.

To enter the preparation margin, a technique can be selected in the page palette:

Technique	Layout	Usage
"Auto"	Height image	With clear preparation margins, for initially drawing in the margin.
"Manual"	Height image	For unclear preparation margins, for subsequent correction of the initial limit.
"Manual with intensity image"	Intensity image	

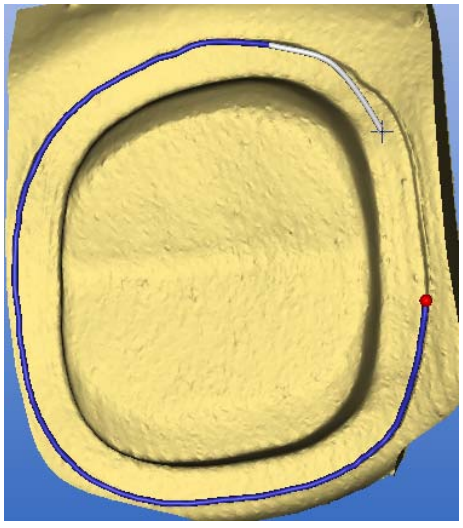
Entering the preparation margin in the case of clear preparation edges



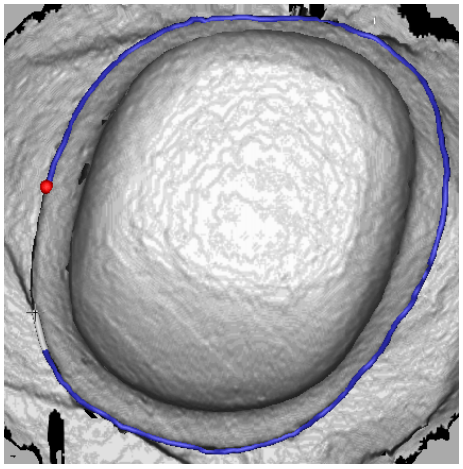
Tip: You can rotate the model during input in order to obtain a better view of the preparation limit.
Click and hold the left mouse button and move the model with the mouse.

1. Start the entry by double-clicking anywhere on the preparation margin.
2. Move the cursor along the preparation margin.
   Tip: To support the automatic edge detection, click anywhere near the margin on the raised side. There is an automatic correction when the next point is set.
3. Continue this procedure until you are back at the starting point.
4. Conclude the entry by double-clicking the starting point.

Entering the preparation margin in the case of blurred preparation edges



If you change to *"Manual"* in the page palette while entering the preparation margin, you can draw in the limit yourself.
Be careful to set the points exactly on the edge and place them close together.



If you wish to see the intensity image in blurred situations, change to the page palette in *"Manual with intensity image"*.

Tip: The space bar can be used to switch back and forth between drawing modes.

Moving to the next step

✓ The step is completed.

➢ Continue with the preparation limits for the next restoration by clicking on the desired restoration in the object bar.

or

➢ Click on the next step.

7.4.8 Defining the insertion axis

In the *"Define Insertion Axis"* step, you can work with the following tools:

- Insertion Axis

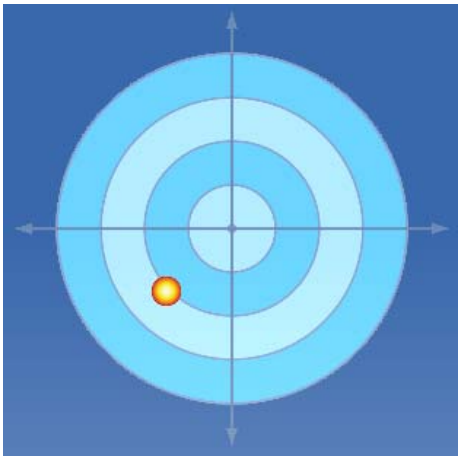
The use of the individual tools is described in the section "Page palette".

7.4.8.1 Preparing the right insertion axis

If indentations are created by positioning the insertion axis vertically to the occlusal surface in the preparatory steps, you must change the direction of the insertion axis.

7.4.8.2 Redefining the insertion axis

> 100 µm
100 - 50 µm
50 - 0 µm



Tip: Regions within a preparation margin that show an undercut from the viewing direction are marked yellow.

1. Change the position of the preparation such that all colored markings disappear.
   If this is not possible, (e.g. in the case of diverging stumps) make sure that all preparation margins are completely visible from the viewing direction and the color highlighted undercuts are as far away as possible from the preparation margin.
2. Confirm with the *"Ok"* button.

↳ The insertion axis of the restoration is determined.

7.4.9 Finishing the phase

✓ The next phase is can be selected.

➢ Click on the next phase.

or

➢ Click on the double arrow.

↳ The program switches over to the next phase.

7.5 Phase DESIGN

7.5.1 Adjusting parameters

Before further editing, you can check the parameters for this restoration and make any changes that are necessary. The values set here refer only to the current restoration.

This step is optional. If you skip this step, the global parameters will be used

You can set the parameters as described in the Parameters section.

7.5.2 Editing the restoration

The virtual model is used for visualizing and designing a 3D restoration.

Once the restoration has been calculated, you can modify the restoration with the tools available in the tool bar.

The individual tools and their uses are described in the section .

7.5.3 Finishing the phase

✓ The next phase is can be selected.

➢ Click on the next phase.

or

➢ Click on the double arrow.

↳ The program switches over to the next phase.

7.6 MILL phase

7.6.1 Replacing the milling unit

In the *"Milling Unit"* step, you can select the unit with which the restoration is to be milled.

7.6.2 Changing milling settings

You can also select veneer mode and/or fast grinding in addition to the grinding process.

Veneer mode

Veneer mode ensures that grinding takes even the finest structures into account. This stops the veneer and anterior crowns binding.

Fast grinding

IMPORTANT
Loss of quality Fast grinding may have a negative influence on the quality of the restoration!

If desired, the grinding process can be accelerated for some materials. You can activate the *"Fast Milling"* button if you require this.

This mode is faster, however, the surface of the milled restoration is slightly rougher.

Two-stage milling

Use two-stage milling on restorations with complex margins and/or low spacers (e.g. multilayer inlays, partial crowns or full crowns with reduced spacers).

The milling time will extend by around 50-60%.

IMPORTANT
Only use two-stage milling for firmly screwed ceramics.

7.6.3 Selecting the color

You can set the color of the restoration and the incisal edge for "CEREC Blocs C In" materials.

✓ You have selected the "CEREC Blocs C In" material in the ADMINISTRATION phase.

1. Select in the *"Select Color"* step.
2. Select the desired color by clicking on the color in the color center.
3. Click on *"Incisal Edge"*.
4. If necessary, adjust the dentine core of the individual situation in the incisal or apical direction.
5. Click the *"OK"* button.
6. The software sets the restoration in the block according to the selected parameters.

7.6.4 Positioning the restoration in the block

You can move and rotate the block around the restoration and determine the sprue position using the positioning tools.

The tools are described in the section .

7.6.5 Exporting a restoration

You can export individual restorations in order to

- process them with the stack software,
- save them for shipment to infiniDent or
- save them in a different format.

"Stack Restoration"	The restoration is stored in *.cam file format. This file format can be read only by inLab Stack SW 4.
"File Restoration"	The restoration is saved as an *.i.lab file. This file format can be processed by infiniDent.
	If a corresponding license is available, the restoration also can be saved as an *.stl file. This format can be processed by any other program that can interpret STL data.

7.6.6 Starting the milling procedure

Once you have completed the design and assessed the restoration in the milling preview, you can mill the restoration.

You can find further information about milling in the corresponding operating instructions.

7.7 Smile Design

With Smile Design, anterior restorations can be designed with consideration of the mouth or face of the patient.

During the construction, it is possible to change between the jaw model and the view with the patient using the analysis tool.

Changing to Smile Design

✓ You set the model axis in the *"Set Model Axis"* step in the MODEL phase.

➢ Click on the *"Smile Design"* function on the left lower on-screen menu.

Changing to Smile Design

1. In the *"ADMINISTRATION"* phase, look for *"Case"* and select the *"Smile Design"* function.
2. After the *"Set Model Axis"* step, when in the MODEL phase, click *"Next"*.
   ↳ The software changes to the *"Smile Design"* function.

Exiting Smile Design

✓ You are in *"Smile Design"*.

➢ Click the *"Full Model"* function at the bottom left edge of the screen to exit *"Smile Design"*.

You can change back to SmileDesign at any time.

7.7.1 Loading reference image

You must load an image of the patient's face for Smile Design. The image must be a head-on passport photograph of the patient smiling.

Permitted formats	Resolution
• jpeg / jpg • bmp • png	Min. 2 megapixels

1. Click on the step *"Load Reference Picture"*.
   ↳ The *"Load Reference Picture"* dialog box opens.
2. Select the folder where the file is located.
3. Select the relevant file.
4. Click the *"Open"* button.
   ↳ The software changes to the *"Define Feature Points"* step.
   ↳ The image is then imported and opened.

7.7.2 Setting reference points

You must set the reference points in the patient image in the *"Define Feature Points"* step. Then simply proceed as prompted by the software. The yellow point in the avatar image shows you where the next face point must be set.

If a magnifier is displayed automatically, you must set the point as precisely as possible.

You can undo each step using *"Undo"*.

7.7.3 Adjusting the canthi distance

Use a suitable measurement tool to measure the clearance between the two canthi points. Change to step *"Lateral Canthi Distance"*.

Adjust the value using the slider.

IMPORTANT
You have to perform this step to achieve a precise correlation between a 3D facial model and the jaw.

7.7.4 Aligning the model

Align the model to the image.

Positioning the model

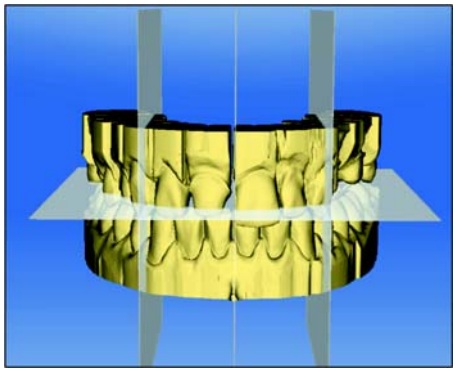
➢ Left-click on an arrow symbol and hold the button down.
   ↳ You can displace or rotate the model in the corresponding direction.

Use the *"Left"* or *"Right"* perspective or turn the facial model to the side using the *"Global"* view options. This enables you to align the facial model and the jaw model precisely.

Changing axes

➢ Right-click on an arrow symbol and hold the button down.
  ↳ You can change the axis on which the object is rotated or moved.

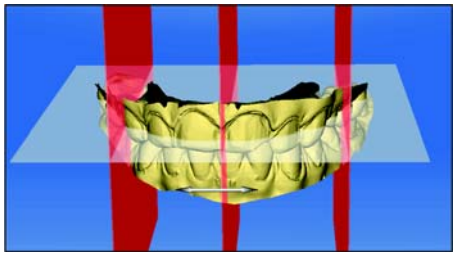
7.7.5 Auxiliary planes



You can display the auxiliary planes in the *"Guideline"* step. The auxiliary planes help with positioning the jaw in the image of the patient.

You can also display the planes for the construction.

1. Double click on the plane you would like to adjust.
2. Adjust the plane using the arrow points.



Positioning the plane

➢ Click with the left mouse button on the arrow symbol and hold the button down.
  ↳ You can move the planes in the relevant direction.

If you only want to move one plane, remove the checkmark at *"Group Guidelines"*. You can activate the planes by double clicking on them.

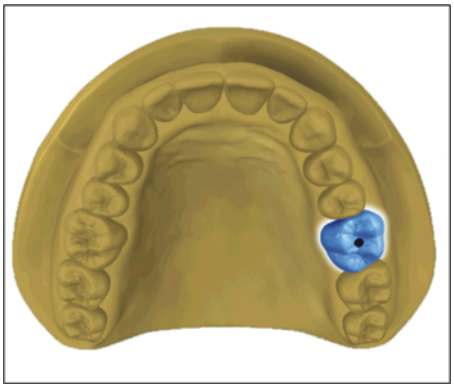
8 Design examples

8.1 Abutment - Biogeneric individual - MultiLayer

Design example *"Abutment"* with design mode *"Biogeneric Individual"* (Split: *"MultiLayer"*) on tooth 26 (#14)

8.1.1 Create a new restoration

Determine restoration type

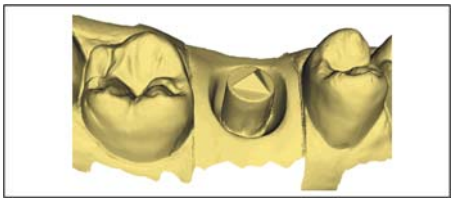


✓ You have selected a case or created a new one.
✓ You are now in the ADMINISTRATION phase.
1. Choose the restoration range *"Single Restoration"*.
2. Select the restoration type *"Abutment"*.
   ↳ The types of restoration available match the selected tooth number.
3. Choose the design modes *"Biogeneric Individual"* and *"MultiLayer"*.
4. Click on the tooth for which the restoration must be set up.
   ↳ The selected tooth is marked.

Choose settings

1. Click on the *"Select Scanbody Type"* step in the step menu.
2. Select the scanbody type to use and which implant is to be taken care of.
3. Optional: If you use several milling units, you can select the machine you would like to use for a specific case in the *"Select Milling Device"* step.
4. In the step menu, click on the step *"Select Material Layer Top"* and select the material for the upper layer.
5. In the step menu, click on the step *"Select Material Layer Bottom"* and select the material for the lower layer.
6. Click on *"Ok"* to confirm the settings.
   ↳ The case has been created.
7. Change to phase SCAN.

8.1.2 Acquiring a preparation



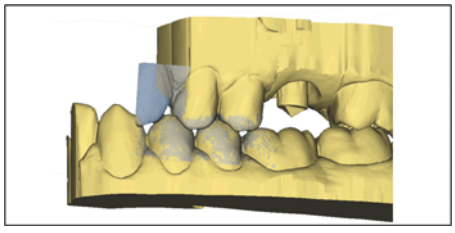
1. Acquire the preparation (see ACQUISITION phase).
2. If all required acquisitions are present, change to phase MODEL.

8.1.3 Editing the model

✓ The step Edit Model is active.

1. With the tool *"Form"*, apply, remove or smoothen material (seeShaping [→ 50]).
2. With the tool *"Cut"*, cut out unnecessary image areas (seeCutting off model regions [→ 51]).
3. Correct defects with the tool *"Replace"* (seeCorrecting defects [→ 52]).

8.1.4 Bite registration



✓ The step *"Bite Registration"* is active.

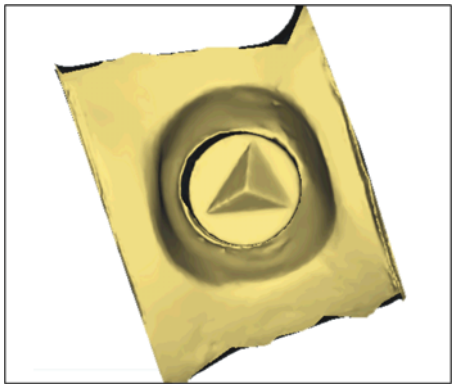
➢ Complete the buccal registration (see Buccal registration [→ 96]).

8.1.5 Set model axis

✓ The step *"Set Model Axis"* is active.

➢ Set the axes for model alignment (see Set model axis [→ 99]). Please ensure a consistent representation here.

8.1.6 Mask areas



✓ The step *"Trim Area"* is active.

➢ Cut away the distal and mesial neighbors, so that you input an open line in each case (see Trimming the preparation [→ 100]).

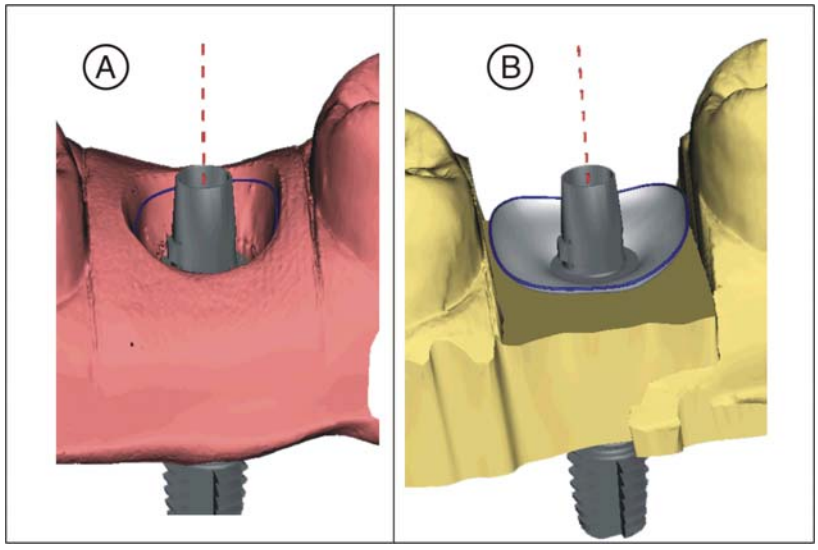
8.1.7 Select Scanbody

✓ The step *"Click Scanbody Head"* is active.

➢ Double-click the Scanbody you are working on.

8.1.8 Editing gingiva lines

If you have acquired a gingiva mask, the tool *"Use Gingiva Mask"* is activated automatically.

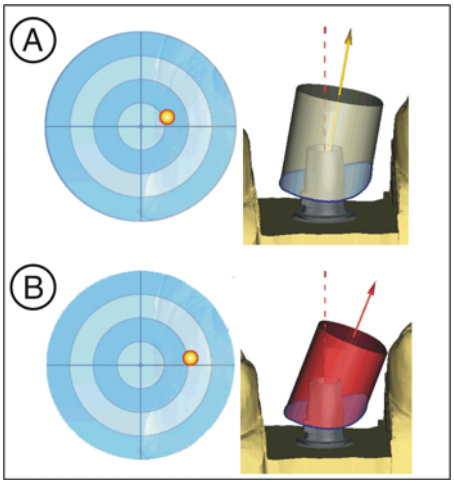


If you have acquired a gingiva mask, the gingiva line (blue) will be suggested automatically (**A**).
If you have not acquired a gingiva mask, or *"Use Gingiva Mask"* has been deselected, an emergence profile will automatically be suggested (**B**).

✓ The step *"Click Scanbody Head"* is active.

➢ Adjust the gingiva line where necessary.
Begin the entry by double-clicking on any part of the preparation's edges. Move the cursor along the preparation's edge until it arrives at the starting point again. Conclude the entry by double-clicking the starting point.

8.1.9 Define restoration axis



The angle between the implant axis (dotted red) and the restoration axis (yellow arrow) may be no higher than 20° (**A**).

If an angle of more than 20° is selected between the implant axis (dotted red) and the restoration axis (yellow arrow), the user will be warned by a change of color to red (**B**).

✓ The step *"Define Restoration Axis"* is active.

1. Check the restoration axis and adjust it where necessary (see Defining the insertion axis [→ 103]).
2. Change to phase DESIGN.

8.1.10 Adjusting parameters

✓ The step *"Restoration Parameters"* is active.

1. Adjust the parameters where necessary.
2. Change to step *"Calculate Restoration"*.
   ↳ An initial suggestion is calculated.

8.1.11 Editing the restoration

The virtual model provides a visualization and design of a restoration in 3D.

Once the restoration has been calculated, you can change the restoration with the tools in the toolbar.

The individual tools and their applications are described in the section.

Editing a single-part restoration

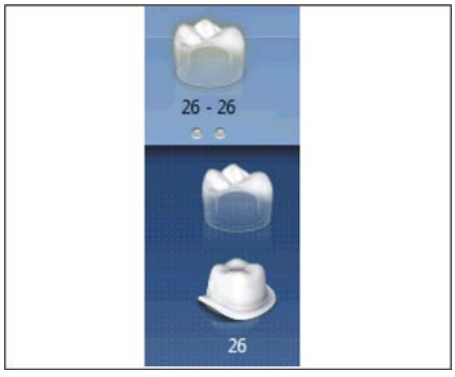
✓ The step *"Edit Restoration"* is active.

➢ Use the tools from the page palette to edit whichever restoration is active.

Edit layers individually

✓ The step *"Edit Restoration"* is active.

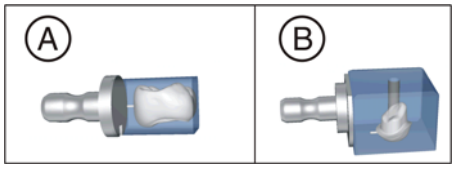
1. Select the split tool.
   ↳ The crown is displayed transparently.



2. With the mouse pointer, go to the bottom edge of the picture.
   ↳ The restoration range expands. 2 restorations are represented for the tooth position.
3. Click on the icon for crown or abutment, to toggle between the two restorations.
4. Use the tools from the page palette to edit whichever restoration is active.

Change to phase MILL. Both restoration layers have to be ground individually.

8.1.12 Grinding of restoration layers



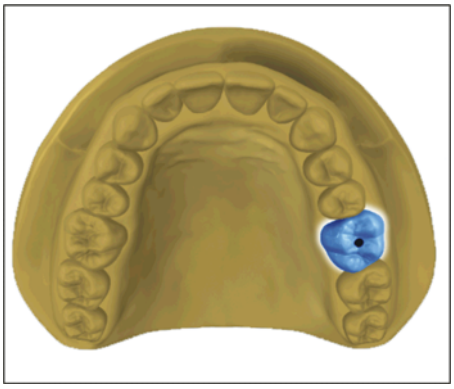
1. In step *"Milling Unit"*, select the tool with which the restoration needs to be ground.
2. In step *"Change Block Size"*, change the block size, where necessary.
3. In step *"Adjust Mill Position"*, position the restoration in the block, where necessary.
4. Start the milling process.

8.2 Abutment - Biogeneric individual

Design example *"Abutment"* with design mode *"Biogeneric Individual"* on tooth 26 (#14)

8.2.1 Create a new restoration

Determining the restoration type



✓ You have selected a case or created a new one.

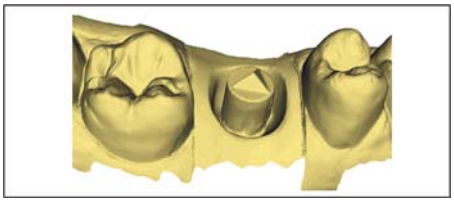
✓ You are now in the ADMINISTRATION phase.

1. Choose the restoration range *"Single Restoration"*.
2. Select the restoration type *"Abutment"*.
   ↳ The types of restoration available match the selected tooth number.
3. Choose the design mode *"Biogeneric Individual"*.
4. Click on the tooth for which the restoration must be set up.
   ↳ The selected tooth is marked.

Choosing settings

1. Click on the *"Select Scanbody Type"* step in the step menu.
2. Select the scanbody type to use and which implant is to be taken care of.
3. Optional: If you are using several milling units, you can select which machine you will use each time in the *"Select Milling Device"* step.
4. In the step menu, click on the step *"Select Material"* and select the material.
5. Click on *"Ok"* to confirm the settings.
   ↳ The case has been created.
6. Change to phase SCAN.

8.2.2 Acquiring a preparation



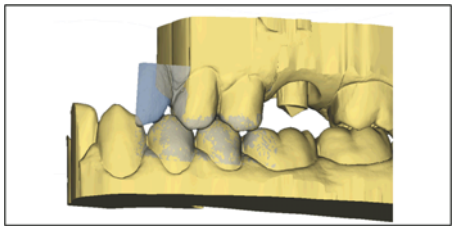
1. Acquire the preparation (see ACQUISITION phase).
2. If all required acquisitions are present, change to phase MODEL.

8.2.3 Editing the model

✓ The step Edit Model is active.

1. With the tool *"Form"*, apply, remove or smoothen material (seeShaping [→ 50]).
2. With the tool *"Cut"*, cut out unnecessary image areas (seeCutting off model regions [→ 51]).
3. Correct defects with the tool *"Replace"* (seeCorrecting defects [→ 52]).

8.2.4 Bite registration



✓ The step *"Bite Registration"* is active.

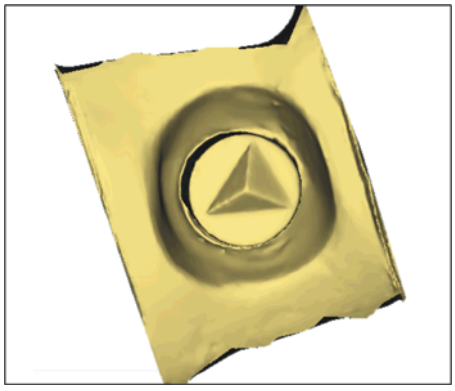
➢ Complete the buccal registration (see Buccal registration [→ 96]).

8.2.5 Set model axis

✓ The step *"Set Model Axis"* is active.

➢ Set the axes for model alignment (see Set model axis [→ 99]). Please ensure a consistent representation here.

8.2.6 Mask areas



✓ The step *"Trim Area"* is active.

➢ Cut away the distal and mesial neighbors, so that you input an open line in each case (see Trimming the preparation [→ 100]).

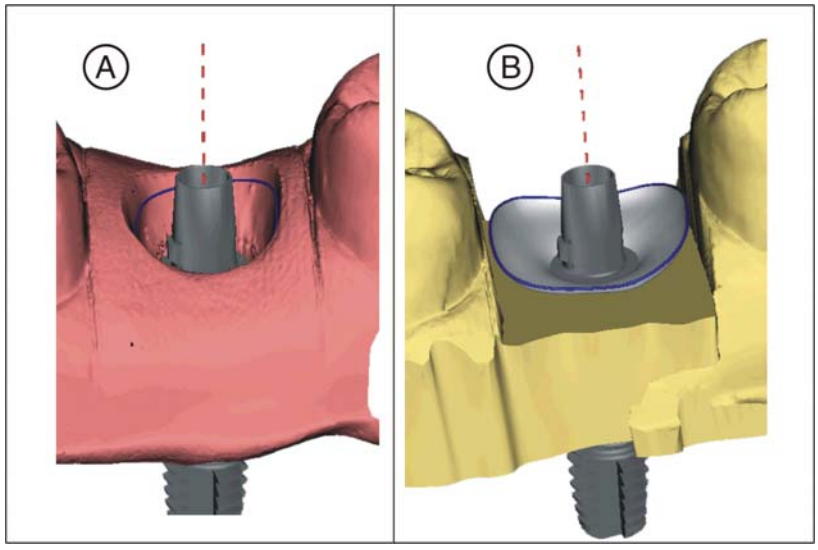
8.2.7 Select Scanbody

✓ The step *"Click Scanbody Head"* is active.

➢ Double-click the Scanbody you are working on.

8.2.8 Editing gingiva lines

If you have acquired a gingiva mask, the tool *"Use Gingiva Mask"* is activated automatically.

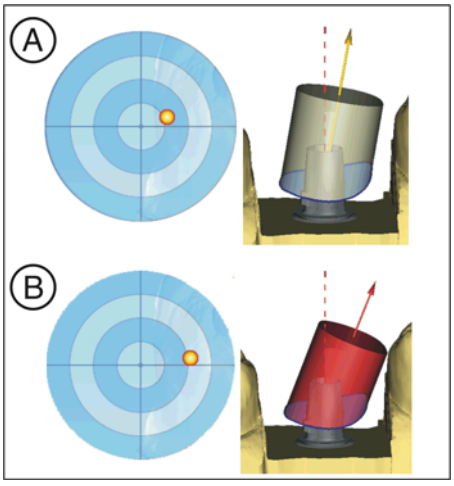


If you have acquired a gingiva mask, the gingiva line (blue) will be suggested automatically (**A**).
If you have not acquired a gingiva mask, or *"Use Gingiva Mask"* has been deselected, an emergence profile will automatically be suggested (**B**).

✓ The step *"Click Scanbody Head"* is active.

➢ Adjust the gingiva line where necessary.
Begin the entry by double-clicking on any part of the preparation's edges. Move the cursor along the preparation's edge until it arrives at the starting point again. Conclude the entry by double-clicking the starting point.

8.2.9 Define restoration axis



The angle between the implant axis (dotted red) and the restoration axis (yellow arrow) may be no higher than 20° (**A**).

If an angle of more than 20° is selected between the implant axis (dotted red) and the restoration axis (yellow arrow), the user will be warned by a change of color to red (**B**).

✓ The step *"Define Restoration Axis"* is active.

1. Check the restoration axis and adjust it where necessary (see Defining the insertion axis [→ 103]).
2. Change to phase DESIGN.

8.2.10 Adjusting parameters

✓ The step *"Restoration Parameters"* is active.

1. Adjust the parameters where necessary.
2. Change to step *"Calculate Restoration"*.
   ↳ An initial suggestion is calculated.

8.2.11 Editing the restoration

The virtual model provides a visualization and design of a restoration in 3D.

Once the restoration has been calculated, you can change the restoration with the tools in the toolbar.

The individual tools and their applications are described in the section.

✓ The step *"Edit Restoration"* is active.

➢ Use the tools from the page palette to edit the restoration.

8.2.12 Grinding the restoration

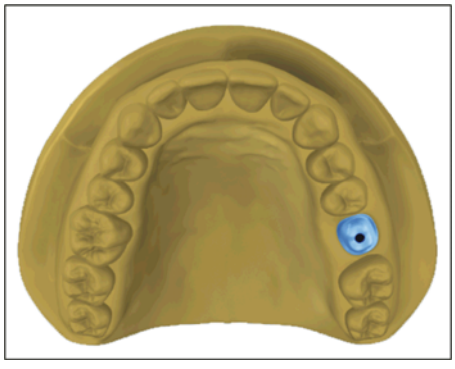
1. In step *"Milling Unit"*, select the tool with which the restoration needs to be ground.
2. In step *"Change Block Size"*, change the block size, where necessary.
3. In step *"Adjust Mill Position"*, position the restoration in the block, where necessary.
4. Start the milling process.

8.3 Abutment - FrameWork

Design example *"Abutment"* with design mode FrameWork on tooth 26 (#14)

8.3.1 Create a new restoration

Determine restoration type



✓ You have selected a case or created a new one.

✓ You are now in the ADMINISTRATION phase.

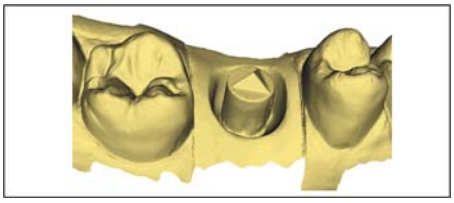
1. Choose the restoration range *"Single Restoration"*.
2. Select the restoration type *"Abutment"*.
   ↳ The types of restoration available match the selected tooth number.
3. Choose the design mode FrameWork.
4. Click on the tooth for which the restoration must be set up.
   ↳ The selected tooth is marked.

Choose settings

1. Click on the *"Select Scanbody Type"* step in the step menu.
2. Select the scanbody type to use and which implant is to be taken care of.
3. Optional: If you are using several milling units, you can select which machine you will use each time in the *"Select Milling Device"* step.
4. In the step menu, click on the step *"Select Material"* and select the material.
5. Click on *"Ok"* to confirm the settings.
   ↳ The case has been created.

6. Change to phase SCAN.

8.3.2 Acquiring a preparation



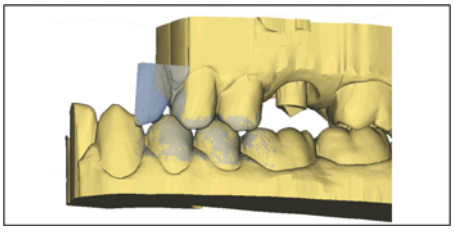
1. Acquire the preparation (see ACQUISITION phase).
2. If all required acquisitions are present, change to phase MODEL.

8.3.3 Editing the model

✓ The step Edit Model is active.

1. With the tool *"Form"*, apply, remove or smoothen material (seeShaping [→ 50]).
2. With the tool *"Cut"*, cut out unnecessary image areas (seeCutting off model regions [→ 51]).
3. Correct defects with the tool *"Replace"* (seeCorrecting defects [→ 52]).

8.3.4 Bite registration



✓ The step *"Bite Registration"* is active.

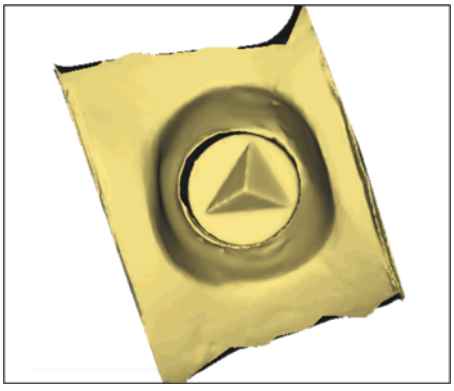
➢ Complete the buccal registration (see Buccal registration [→ 96]).

8.3.5 Set model axis

✓ The step *"Set Model Axis"* is active.

➢ Set the axes for model alignment (see Set model axis [→ 99]). Please ensure a consistent representation here.

8.3.6 Mask areas



✓ The step *"Trim Area"* is active.

➢ Cut away the distal and mesial neighbors, so that you input an open line in each case (see Trimming the preparation [→ 100]).

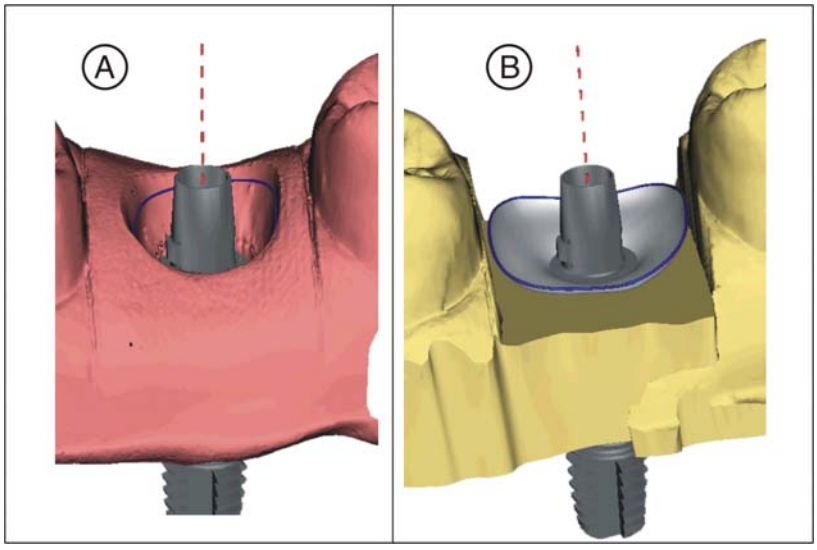
8.3.7 Select Scanbody

✓ The step *"Click Scanbody Head"* is active.

➢ Double-click the Scanbody you are working on.

8.3.8 Editing gingiva lines

If you have acquired a gingiva mask, the tool *"Use Gingiva Mask"* is activated automatically.

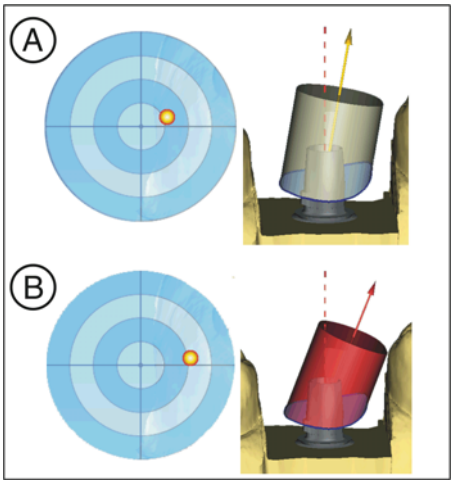


If you have acquired a gingiva mask, the gingiva line (blue) will be suggested automatically (**A**).
If you have not acquired a gingiva mask, or *"Use Gingiva Mask"* has been deselected, an emergence profile will automatically be suggested (**B**).

✓ The step *"Click Scanbody Head"* is active.

➢ Adjust the gingiva line where necessary.
Begin the entry by double-clicking on any part of the preparation's edges. Move the cursor along the preparation's edge until it arrives at the starting point again. Conclude the entry by double-clicking the starting point.

8.3.9 Define restoration axis



The angle between the implant axis (dotted red) and the restoration axis (yellow arrow) may be no higher than 20° (**A**).

If an angle of more than 20° is selected between the implant axis (dotted red) and the restoration axis (yellow arrow), the user will be warned by a change of color to red (**B**).

✓ The step *"Define Restoration Axis"* is active.

1. Check the restoration axis and adjust it where necessary (see Defining the insertion axis [→ 103]).
2. Change to phase DESIGN.

8.3.10 Adjusting parameters

✓ The step *"Restoration Parameters"* is active.

1. Adjust the parameters where necessary.
2. Change to step *"Calculate Restoration"*.
   ↳ An initial suggestion is calculated.

8.3.11 Editing the restoration

The virtual model provides a visualization and design of a restoration in 3D.

Once the restoration has been calculated, you can change the restoration with the tools in the toolbar.

The individual tools and their applications are described in the section.

✓ The step *"Edit Restoration"* is active.

➢ Use the tools from the page palette to edit the restoration.

8.3.12 Grinding the restoration

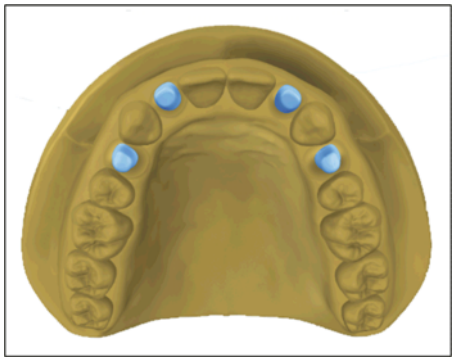
1. In step *"Milling Unit"*, select the tool with which the restoration needs to be ground.
2. In step *"Change Block Size"*, change the block size, where necessary.
3. In step *"Adjust Mill Position"*, position the restoration in the block, where necessary.
4. Start the milling process.

8.4 Bars

Design example *"Bridge Restoration"* with bars (*"Telescope"* design mode on teeth 14-24 (#5-#12)

8.4.1 Create a new restoration

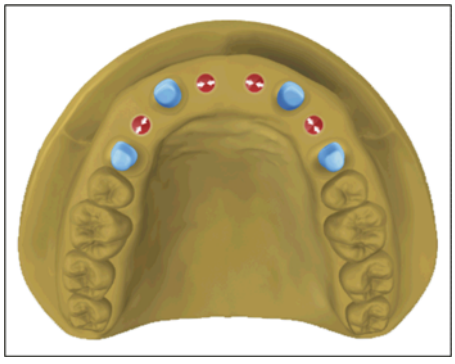
Determine restoration type



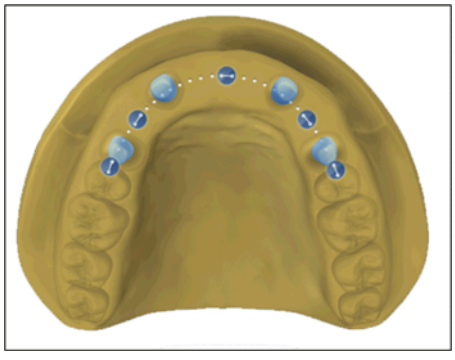
✓ You have selected a case or created a new one.

✓ You are now in the ADMINISTRATION phase.

1. Choose the restoration range *"Bridge Restoration"*.
2. Select the restoration type *"Crown"*.
3. Choose the design mode *"Telescope"*.
4. Click on the teeth to be used as supporting elements.
   ↳ The selected teeth are marked.



5. Select the restoration type *"Missing"*.
6. Click on the missing teeth between the supporting elements.
   ↳ The selected teeth are marked.

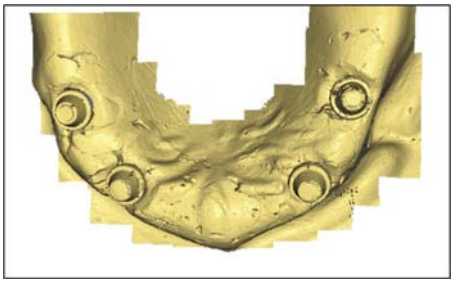


7. Click on the restoration type *"Bar"*.
8. Select the restoration type *"Squared"*.
9. Select the bars
   Also select the exposed ends if necessary.

Choose settings

1. Optional: In the step menu, click on the step *"Select Milling Device"* to change the current milling unit.
2. In the step menu, click on the step *"Select Material"* and select it for the restoration.
3. Click on *"Ok"* to confirm the settings.
   ↳ The case has been created.
4. Change to phase SCAN.

8.4.2 Acquiring a preparation



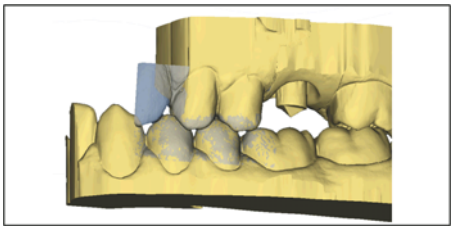
1. Acquire the preparation (see ACQUISITION phase).
2. Acquire the existing WaxUp models to the *"BioCopy Upper"* or *"BioCopy Lower"* image catalog. Be careful to include the regions for the buccal registration.
3. Acquire the gingival mask if necessary.
4. If all required acquisitions are present, change to phase MODEL.

8.4.3 Editing the model

✓ The step Edit Model is active.

1. With the tool *"Form"*, apply, remove or smoothen material (seeShaping [→ 50]).
2. With the tool *"Cut"*, cut out unnecessary image areas (seeCutting off model regions [→ 51]).
3. Correct defects with the tool *"Replace"* (seeCorrecting defects [→ 52]).

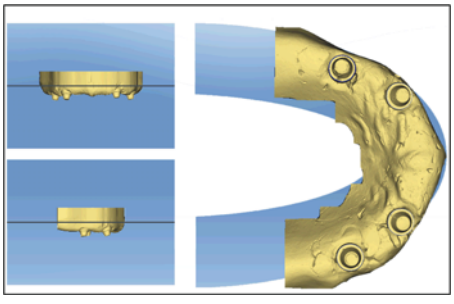
8.4.4 Bite registration



✓ The step *"Bite Registration"* is active.

➢ Complete the buccal registration (see Buccal registration [→ 96]).

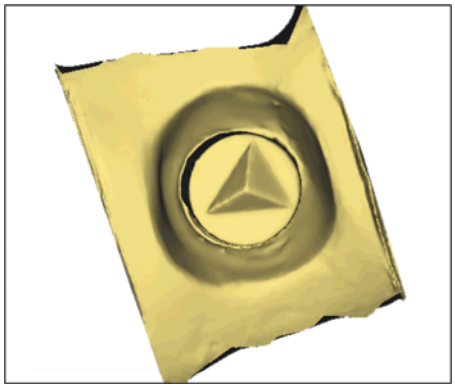
8.4.5 Set model axis



✓ The step *"Set Model Axis"* is active.

➢ Set the axes for model alignment (see Set model axis [→ 99]). Please ensure a consistent representation here.

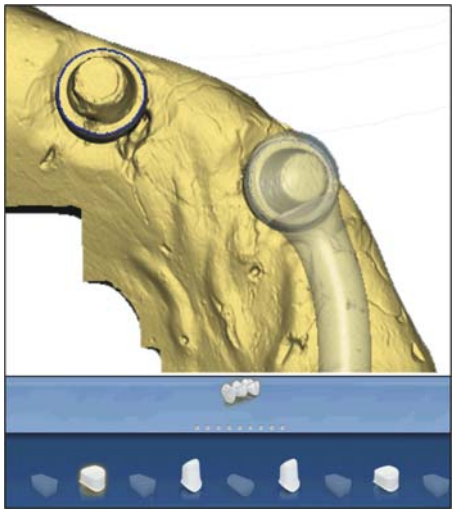
8.4.6 Mask areas



✓ The step *"Trim Area"* is active.

➢ Cut away the distal and mesial neighbors, so that you input an open line in each case (see Trimming the preparation [→ 100]).

8.4.7 Drawing the preparation margin

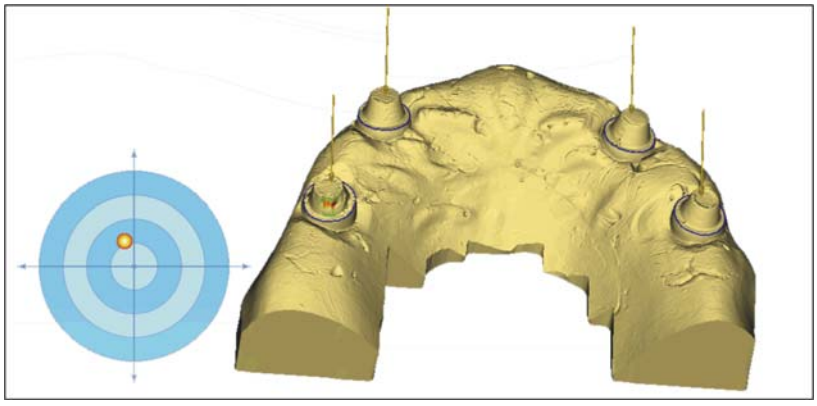


✓ The step *"Draw Margin"* is active.

1. Move the mouse to the bottom edge of the screen.
   ↳ The components of the bridge are then displayed.
2. Select the first crown, tooth 14 (#5).
3. Draw in the preparation margin on tooth 14 (#5).
4. Repeat this procedure for teeth 12 (#7), 22 (#10) and 24 (#12).

8.4.8 Defining axes

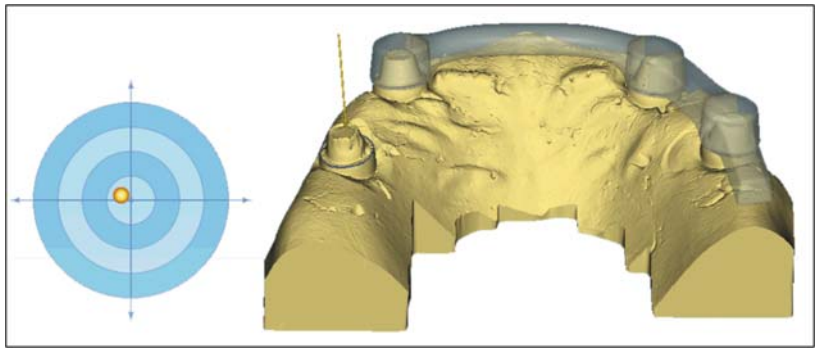
Defining the bridge axis



➢ Define the axis for the entire bridge in the step *"Define Bridge Insertion Axis"*.

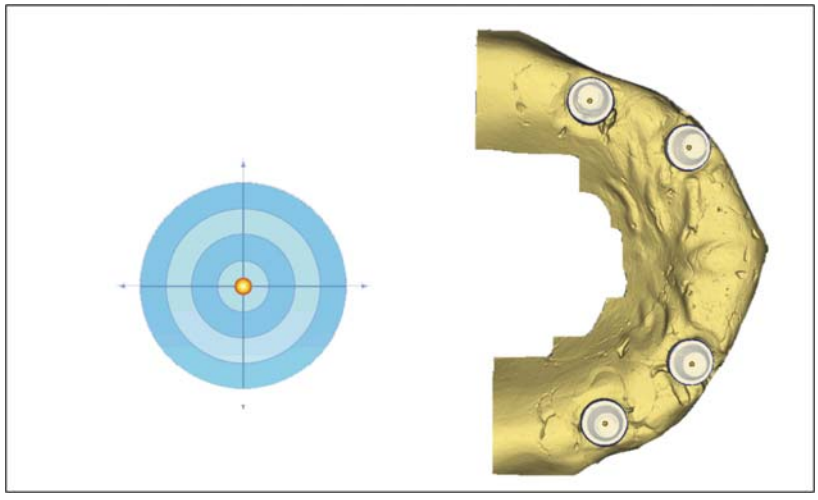
Defining the insertion axis

The step *"Define Insertion Axis"* is optional, depending on the selected milling machine.



➢ Define the axis for all teeth individually in the step *"Define Insertion Axis"*.

Defining the restoration axis



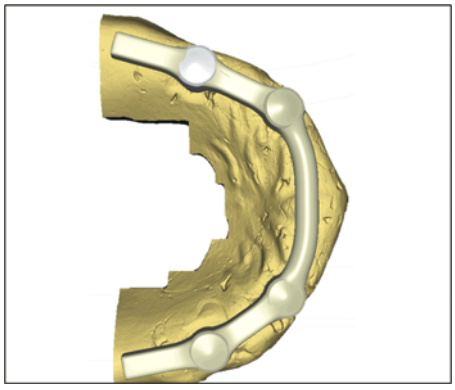
➢ In the step *"Define Restoration Axis"*, group all supporting elements and fit them together.

8.4.9 Adjusting parameters

✓ The step *"Restoration Parameters"* is active.

1. Adjust the parameters where necessary.
2. Change to step *"Calculate Restoration"*.
   ↳ An initial suggestion is calculated.

8.4.10 Editing the restoration



The virtual model provides a visualization and design of a restoration in 3D.

Once the restoration has been calculated, you can change the restoration with the tools in the toolbar.

The individual tools and their applications are described in the section.

✓ The step *"Edit Restoration"* is active.

➢ Use the tools from the page palette to edit the restoration.

8.4.11 Grinding the restoration

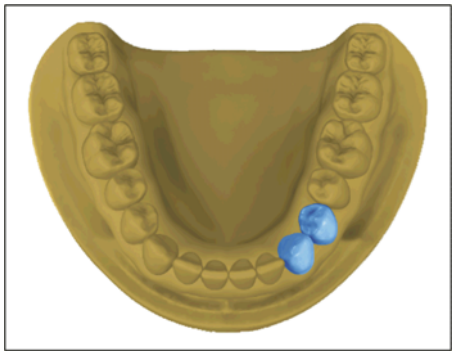
1. In step *"Milling Unit"*, select the tool with which the restoration needs to be ground.
2. In step *"Change Block Size"*, change the block size, where necessary.
3. In step *"Adjust Mill Position"*, position the restoration in the block, where necessary.
4. Start the milling process.

8.5 Attachments

Design example *"Bridge Restoration"* with attachment on teeth 33-34 (#22-#21) and bridge on teeth 35-37 (#20-#18)

8.5.1 Create a new restoration

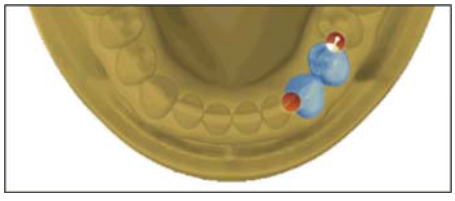
Creating a bridge with an attachment



✓ You have selected a case or created a new one.

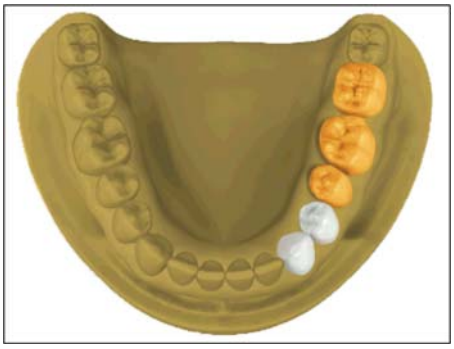
✓ You are now in the ADMINISTRATION phase.

1. Choose the restoration range *"Bridge Restoration"*.
2. Select the restoration type *"Crown"*.
3. Choose the design mode *"Biogeneric Individual"*.
4. Click on tooth 34 (#21) where the attachment is to be located and on the existing neighboring tooth 33 (#22).
   ↳ The selected teeth are marked.



5. Select the restoration type *"Attachment"*.
6. Click on the distal attachment.
7. Optional: In the step menu, click on the step *"Select Milling Device"* to change the current milling unit.
8. In the step menu, click on the step *"Select Material"* and select it for the restoration.
9. Click on *"Ok"* to confirm the settings.
   ↳ The case has been created.

Creating a bridge with a pontic

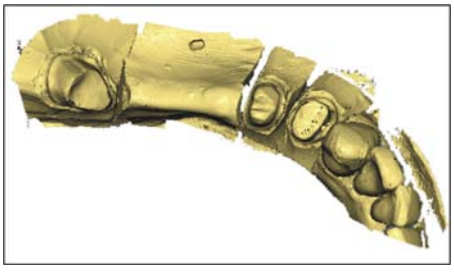


✓ You have created a bridge with an attachment.

✓ You are now in the ADMINISTRATION phase.

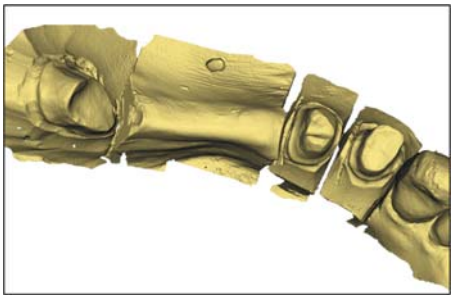
1. Choose the restoration range *"Bridge Restoration"*.
2. Select the required restoration categories and restoration types and click on the respective teeth.
   Distal tooth 35 (#20) for the attachment must be a pontic.
   ↳ The selected teeth are marked.
3. Optional: In the step menu, click on the step *"Select Milling Device"* to change the current milling unit.
4. In the step menu, click on the step *"Select Material"* and select it for the restoration.
5. Click on *"Ok"* to confirm the settings.
   ↳ The case has been created.

8.5.2 Acquiring a preparation



1. Acquire the preparation (see ACQUISITION phase).
2. If all required acquisitions are present, change to phase MODEL.

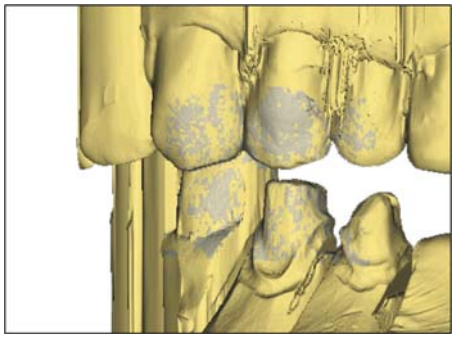
8.5.3 Editing the model



✓ The step Edit Model is active.

1. With the tool *"Form"*, apply, remove or smoothen material (seeShaping [→ 50]).
2. With the tool *"Cut"*, cut out unnecessary image areas (seeCutting off model regions [→ 51]).
3. Correct defects with the tool *"Replace"* (seeCorrecting defects [→ 52]).

8.5.4 Bite registration



✓ The step *"Bite Registration"* is active.

➢ Complete the buccal registration (see Buccal registration [→ 96]).

8.5.5 Set model axis

✓ The step *"Set Model Axis"* is active.

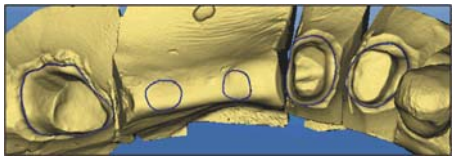
➢ Set the axes for model alignment (see Set model axis [→ 99]). Please ensure a consistent representation here.

8.5.6 Mask areas

✓ The step *"Trim Area"* is active.

➢ Cut away the distal and mesial neighbors, so that you input an open line in each case (see Trimming the preparation [→ 100]).

8.5.7 Drawing the preparation margin



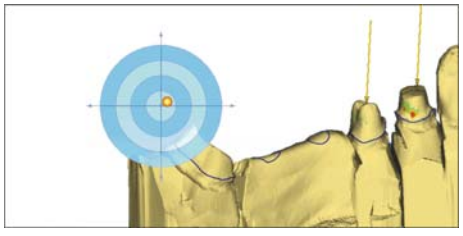
✓ The step *"Draw Margin"* is active.

➢ Draw in the preparation margins for all restorations in both bridges (see Entering the preparation margin [→ 101]).

8.5.8 Defining axes

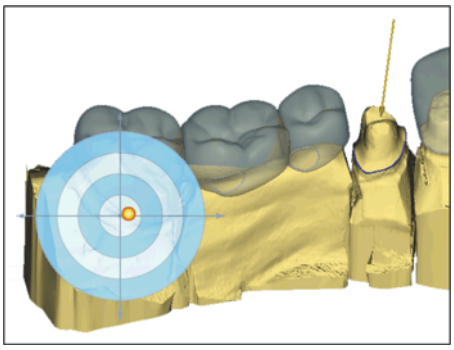
Perform the following steps for both bridges.

Defining the bridge axis



➢ Define the axis for the entire bridge in the step *"Define Bridge Insertion Axis"*.

Defining the insertion axis



➢ Define the axis for all teeth individually in the step *"Define Insertion Axis"*.

8.5.9 Adjusting parameters

✓ The step *"Restoration Parameters"* is active.

1. Adjust the parameters where necessary.
2. Change to step *"Calculate Restoration"*.
   ↳ An initial suggestion is calculated.

8.5.10 Editing restorations

The virtual model provides a visualization and design of a restoration in 3D.

Once the restoration has been calculated, you can change the restoration with the tools in the toolbar.

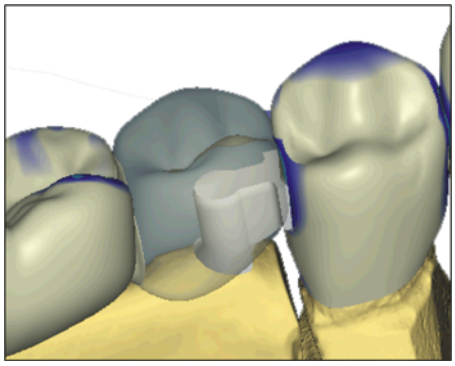
The individual tools and their applications are described in the section.

✓ The step *"Edit Restoration"* is active.

➢ Use the tools from the page palette to edit both bridges.

Editing the attachment

1. Click on the bridge with the attachment in the object bar.
2. Move the mouse to the bottom edge of the screen.
3. Click on the attachment in the detail display.

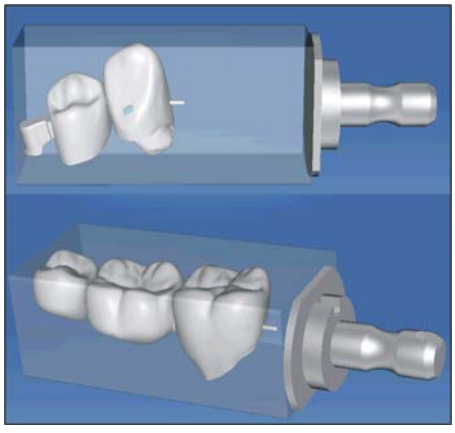


↳ The overlying tooth element is displayed transparent.

4. Select the *"Move"* tool and place the attachment in a suitable location. Be careful to maintain the occlusal distance.
   Important: Unsuitable placement. The position of the attachment is checked after you close the tool. The attachment is then displayed in red if the positioning can cause problems.
5. Select the tool *"Subtract Attachment from Pontic"* and click on the attachment. The overlying tooth element is then adapted so that it can be slid onto the attachment.

8.5.11 Grinding the restoration

Perform the following steps for both bridges.



1. In step *"Milling Unit"*, select the tool with which the restoration needs to be ground.
2. In step *"Change Block Size"*, change the block size, where necessary.
3. In step *"Adjust Mill Position"*, position the restoration in the block, where necessary.
4. Start the milling process.

8.6 Model

NOTICE

Make sure the correct tools are used

Specific tools (milling cutters) are required for milling the models on the MC XL. The milling cutters will be used as follows:

Set 1: Finisher 10

Set 2: Shaper 25

➢ Do not use the milling instruments for restorations in order to produce models.

NOTICE

Make sure the milling cutters are used correctly

If the milling cutters are not used as described below, this may cause damage to the milling unit.

➢ Use the Shaper 25 and Finisher 10 milling cutters only in inLab MC XL milling units, as of serial number 120 000 or in inLab MC XL milling units that have been upgraded using the motor upgrade kit for inLab (REF 6338631).

➢ Use the Shaper 25 and Finisher 10 milling cutters only for manufacturing models from the inCoris S model (REF 6299361) and inCoris L model blocks (REF 6299379).

8.6.1 Create a new restoration

✓ You have selected a case or created a new one.

✓ You are now in the ADMINISTRATION phase.

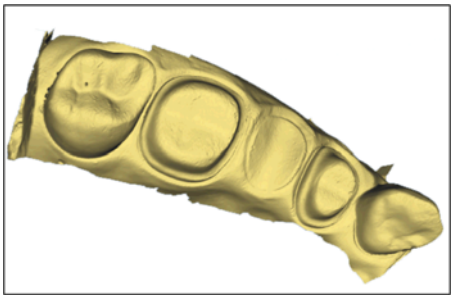
1. Choose the restoration range *"Model"*.
2. Click on the upper and lower jaw or on both jaws.

3. Change to step *"Select Base Plate"*.
4. Select the *"Large"* or *"Small"* base plate.
   Tip: If you select *"Automatic"*, the software will automatically select the appropriate base plate.
5. Click the OK button.
   ↳ The model is then created
6. If necessary, create restorations.

8.6.2 Acquiring a preparation

1. Acquire the preparation (see ACQUISITION phase).
   Acquire the entire jaw or a section of it.
2. If all required acquisitions are present, change to phase MODEL.

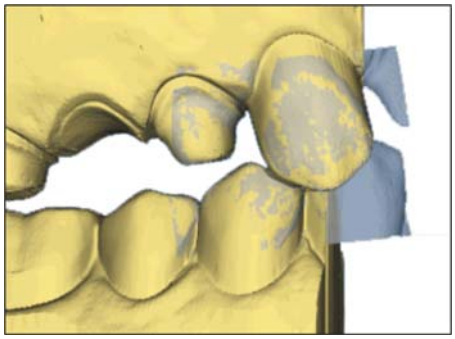
8.6.3 Editing the model



✓ The step Edit Model is active.

1. With the tool *"Form"*, apply, remove or smoothen material (seeShaping [→ 50]).
2. With the tool *"Cut"*, cut out unnecessary image areas (seeCutting off model regions [→ 51]).
3. Correct defects with the tool *"Replace"* (seeCorrecting defects [→ 52]).

8.6.4 Bite registration



✓ The step *"Bite Registration"* is active.

➢ Complete the buccal registration (see Buccal registration [→ 96]).

8.6.5 Set model axis

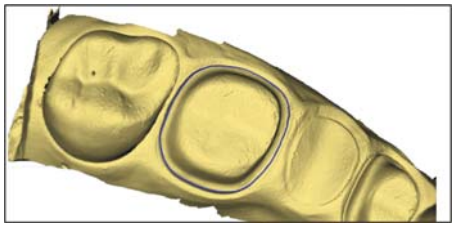
✓ The step *"Set Model Axis"* is active.

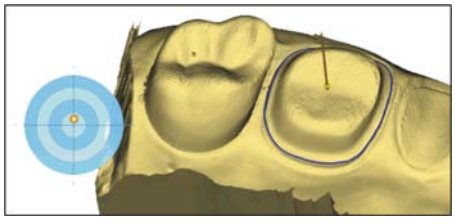
➢ Set the axes for model alignment (see Set model axis [→ 99]). Please ensure a consistent representation here.

8.6.6 Editing restorations

If you have created restorations, you now must generate them. Perform the following steps for each created generation before continuing to edit the model.

1. Click on the restoration in the object bar.
2. Draw in the preparation margin (see Entering the preparation margin [→ 101]).



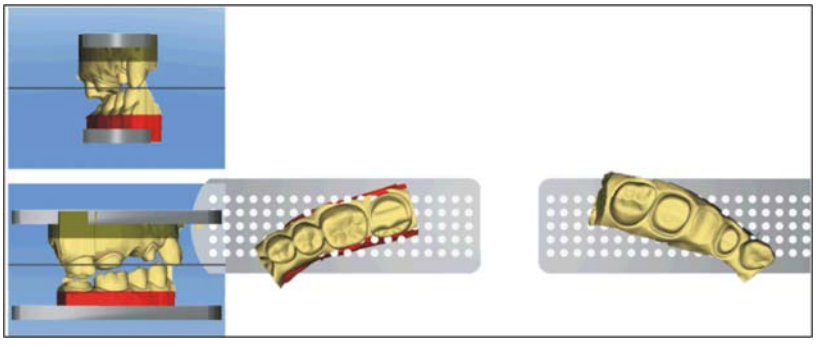


3. Align the insertion axis (see Defining the insertion axis [→ 103]).

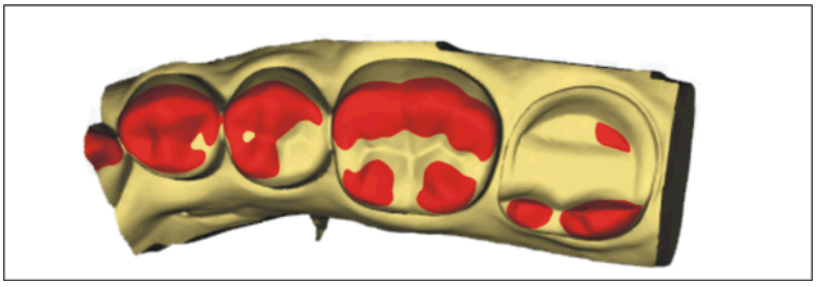
8.6.7 Aligning the model

✓ You have edited all preparations.

1. Click on the model in the object bar.
   ↳ The software changes to the *"Orientation"* step.



2. Move the model so that all important regions are visible. All red regions lie outside of the block and will be cut off.
   You can displace the model up and down, rotate and move it.
3. Check whether the model is properly aligned and click the *"Ok"* button.



Misalignment - red areas will be cut off

8.6.8 Adjusting parameters

✓ The step *"Model Parameters"* is active.

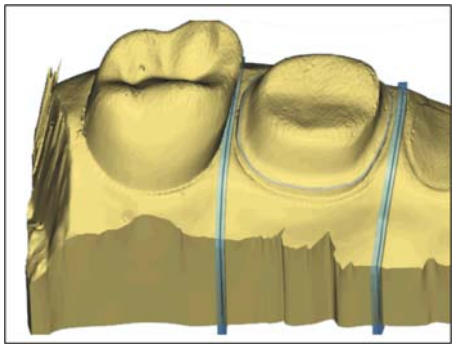
1. **Important:** Change only the setting *"Segmentation Cut Width"* here. Leave all other values unchanged.
2. Change to step *"Initialize Segments"*.
   ↳ An initial suggestion is calculated.

8.6.9 Segmentation

You can divide the model into multiple segments in the *"Segmentation"* step.

If the virtual model is segmented in this design step, both the sides and the bottom are subsequently displayed as closed.

Segmenting the model

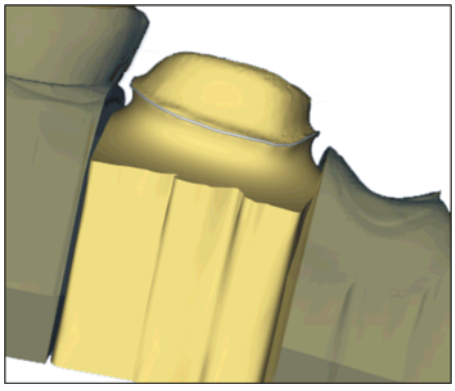


✓ The step *"Segmentation"* is active.

1. Rotate the model to a perspective in which you can see all areas that you want to segment. The model cannot be rotated while you are drawing the line.
2. Double click in any location to set the start point of the line.
3. Click to set further points of the line, e.g. in the interdental space.
4. Double click in any position to end the line.
   ↳ The model is then divided along the line.

5. Check to make sure that the individual segments fit into a block. Areas that are too long are displayed in red.
   Tip: Double click on an existing cut to remove it.

8.6.10 Undercutting segments

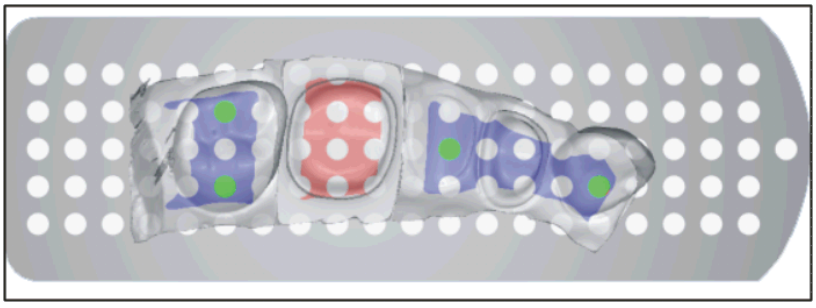


Segments that cannot be undercut are grayed out.

✓ The step *"Ditching"* is active.

➢ Double-click on the segment you would like to undercut.
   ↳ The segment is undercut.
   Tip: You can double-click on the segment again to undo the undercut.

8.6.11 Placing pins

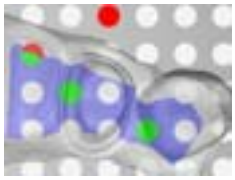
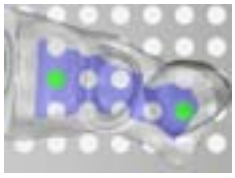


✓ The step *"Pinning"* is active.

1. You can place the model on the base plate freely.
   Make sure that no important regions are cut off. All red regions lie outside of the block and will be cut off.
   You can displace the model up and down, rotate and move it.

2. Select the *"Automatic Model Pinning"* tool.
   ↳ The pins are automatically set in such a way that at least 2 pins with optimal spacing are set per segment.

3. Select the *"Manual Model Pinning"* tool.
4. In necessary, set additional pins by clicking on a pin position. Remove the pins by clicking on an existing pin.
5. If all regions are displayed in blue, click the OK button.

	• Green pin – Positioning OK • Red pin – Positioning not OK. Place this pin in the valid region.
	• Blue region – Segment has enough pins (at least 2) and therefore can be produced.
	• Red region – Segment does not have enough pins. – Place additional pins in this segment.

8.6.12 Closing the model

1. Click on the *"MILL"* phase.
2. The model segments are calculated.
   The software changes to the step *"Preview"*.
3. Check the preview and go back to make changes if necessary.
4. Change to step *"Export"*.
5. Click the *"Stack Restoration"* button to export the model for the inLab Stack software.

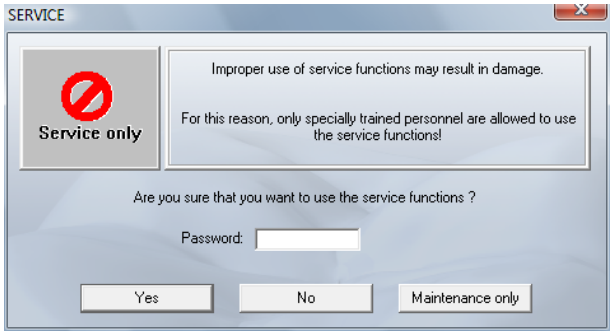
6. Click the *"File Restoration"* button to save a stack file (*.cam) or an Infinident file (*.i.lab) to any folder.

9 Tips and Tricks

9.1 Service program

➢ Start the service program in the inLab program group by clicking Start / All Programs / Sirona Dental Systems/inLab/Tools/ *"Service"*.

↳ A dialog box containing an input box for the service password and three buttons is displayed.


SERVICE
Service only
Improper use of service functions may result in damage.
For this reason, only specially trained personnel are allowed to use the service functions!
Are you sure that you want to use the service functions ?
Password:
Yes
No
Maintenance only

Service dialog

⚠ CAUTION

Service functions

The service functions are exclusively for use by authorized inLab service engineers.

This program area can be accessed only by authorized technical personnel with a service password.

- With the Yes button, you confirm the service password.
- With the *"No"* button, you exit the service program.
- With the *"Maintenance only"* button, you also can change the water of the milling unit **without** having to enter a service password (also see the operating instructions for the milling unit).

9.2 Shortcut keys

General

Shortcut keys	Meaning
Ctrl + N	Create a new case
Ctrl + S	Save case
Ctrl + Alt + S	Save the case under a different name
Ctrl + I	Import case
Ctrl + E	Export case
Ctrl + Q	Close the software
F1	Open the Help section
Ctrl + F1	Change to the ADMINISTRATION phase
Ctrl + F2	Change to the SCAN phase

Shortcut keys	Meaning
Ctrl + F3	Change to the MODEL phase
Ctrl + F4	Change to the DESIGN phase
Ctrl + F5	Change to the MILL phase

Tool wheel

The tool wheel for tools, views, analysis tools, and link options can be called using a shortcut key. You can call this tool wheel in the MODEL, DESIGN, and MILL phases.

Shortcut keys	Meaning
E	Opens the tool wheel at the location of the cursor.
D	Opens the view options at the location of the cursor.
A	Opens the analysis tools at the location of the cursor.
L	Opens the link options at the location of the cursor.

The individual functions can be displayed or hidden using a number on the keyboard.

You can set transparencies by clicking and dragging the left mouse button.

Scanning

Shortcut keys	Meaning
1	Change to the Lower Jaw image catalog
2	Change to the Upper Jaw image catalog
3	Change to the Buccal image catalog
4	Change to the BioRef Lower image catalog
5	Change to the BioRef Upper image catalog
6	Change to the Gingiva Mask Lower Jaw image catalog
7	Change to the Gingiva Mask Upper Jaw image catalog
8	Change to the BioCopy Lower image catalog
9	Change to the BioCopy Upper image catalog

Shortcut keys	Meaning
Arrow up	Changes to the right, to the next image catalog. If this is not yet available, the corresponding image catalog is applied.
Arrow down	Changes to the left, to the next image catalog. If this is not yet available, the corresponding image catalog is applied.
Num 1	Changes to the grid acquisition mode
Num 2	Changes to the free acquisition mode
Num 3	Changes to the rotation acquisition mode
Space bar	Switches the camera on or off
Return	Changes to manual mode or triggers an acquisition
+	Starts the acquisitions in automatic acquisition mode
-	Ends the acquisitions in automatic acquisition mode
Ctrl + C	Copy
Ctrl + V	Insert
Ctrl + X	Cut
Ctrl + A	Mark all
A (add)	Adds the current acquisitions to a temporary group
M (merge)	Merges the current acquisitions with the acquisitions in the temporary group
S (swap)	Swaps the current acquisitions for the acquisitions in the temporary group

Model, design, and milling

Shortcut keys	Meaning
E	Opens the tool wheel at the location of the cursor.
D	Opens the view options at the location of the cursor.
A	Opens the analysis tools at the location of the cursor.
L	Opens the link options at the location of the cursor.
Alt + V	Displays the View Options
Alt + T	Displays the Tools
Alt + D	Displays the Display Objects
Alt + A	Displays the Analyzing Tools
Ctrl + Num 3	Changes to buccal display
Ctrl + Num 5	Changes to centered display
Ctrl + Num 2	Changes to cervical display
Ctrl + Num 9	Changes to distal display
Ctrl + Num 7	Changes to lingual display

Shortcut keys	Meaning
Ctrl + Num 1	Changes to mesial display
Ctrl + Num 8	Changes to occlusal display
Ctrl + O	Displays or hides the occlusal contacts
Ctrl + A	Displays or hides the approximal contacts
Ctrl + M	Displays or hides the contacts of the entire model
Ctrl + R	Changes the color of the model
Ctrl + B	Displays or hides the model box
Ctrl + C	Creates a cut on the on-screen level
Ctrl + D	Displays or hides details with the mouse pointer
Ctrl + U	Activates the *"Distance"* function to measure distances
Ctrl + G	Displays or hides a grid
Alt + F	Changes to the *"Form"* tool
Alt + M	Changes to the *"Move"* tool
Alt + S	Changes to the *"Scale"* tool
Alt + R	Changes to the *"Reduce"* tool
Alt + N	Changes to the *"Recalculate"* tool
Alt + C	Changes to the *"Contacts"* tool
Alt + U	Resets the changes made with the tool
Ctrl + Z	Restores the last change made by the tool
Alt + 0	Closes the tool
Alt + H	Changes to the *"Shape"* tool
Alt + X	Changes to the *"Split"* tool

10 inLab Stack SW 4.2

10.1 Getting started

10.1.1 Installing the software

The software requires the 2.00 firmware version of the license stick. Update the firmware version if necessary. For more information, refer to the section on License manager [→ 141].

NOTICE

Installation only with administrator rights

You must have administrator rights on the PC on which you want to install the software!

✓ Version 2.00 of the firmware is available.

✓ The PC is powered up and all programs are terminated.

1. Insert the DVD in the DVD drive.
   ↳ The setup program starts automatically.
2. If this is not the case, run the *"Setup.exe"* file in the root directory of the DVD.
   ↳ The installation wizard opens.
3. Click the *"OK"* button.
4. In the next dialog, click the *"Next"* button.
   ↳ The license agreement is shown.
5. Read through the license agreement carefully.
6. If you accept the license agreement, then activate the *"I accept the terms in the license agreement"* option button and confirm your acceptance by clicking the *"Next"* button.
7. In the next dialog, click the *"Next"* button.
8. In the next dialog, click the *"Install"* button.
   ↳ The program continues the installation routine. This may take several minutes.
9. Click the *"Finish"* button once installation is complete.
   ↳ The software is installed.

10.1.2 Copy protection

The software can be started only when the USB license stick is plugged in. The USB license stick is included in the scope of supply of the units. If you require additional licenses, please contact your dealer.

Always keep the USB license stick near the unit.

All authorizations (milling, interface, software licenses) can be installed as electronic licenses on the USB license stick. You must enter a 25-digit license key for this purpose.
You will receive the license key along with the unit. Alternatively, you can order it separately from your dealer.

Following an update, you may require a new license that is not available on your USB license stick. For more information, refer to the section on License manager [→ 141].

10.1.3 Starting the software

✓ The "inLab Stack SW" software is installed. You will find the start icon on the desktop.

✓ The USB license stick is connected with a valid, current license.

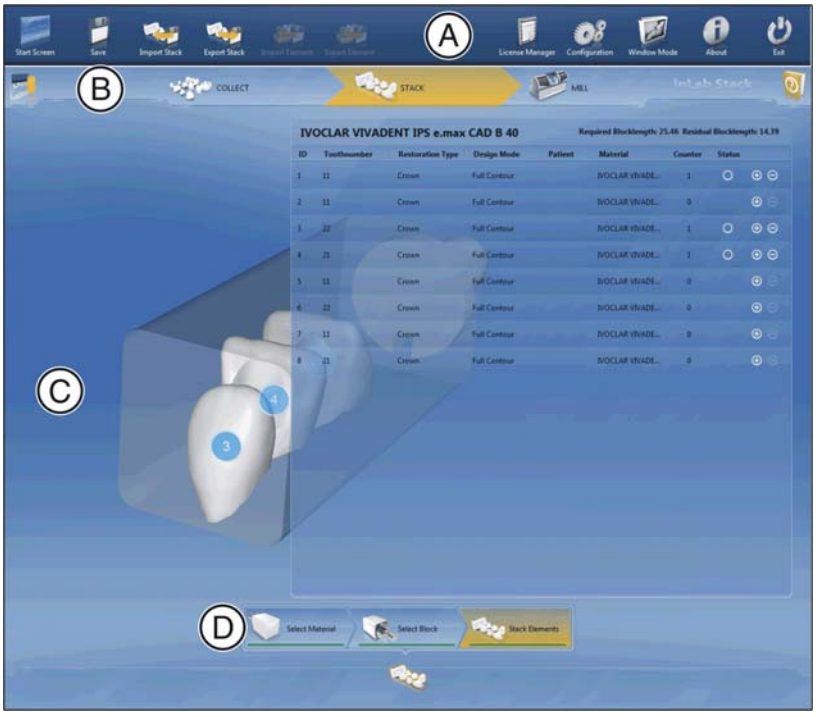
➢ Double-click the "inLab Stack SW" start icon.

or

➢ Click on "Start / All Programs / Sirona Dental Systems/ inLab / inLab Stack SW 4".

↳ The software is started.

10.2 User interface



Overview of the user interface

A	System menu	C	Main window
B	Phase bar	D	Step menu

10.2.1 System menu

In the system menu, you can perform the following:

- Switch to the start window to start a new case
- Saving a stack

- Importing a stack
- Exporting a stack
- Importing an element
- Exporting an element
- Open license manager
- Configure hardware and software
- Change window mode
- Retrieve software information
- Closing the software

Opening system menu

➢ Move the mouse cursor to the top of the window.

or

➢ Click on the system menu button.

↳ The system menu is displayed.

Closing system menu

➢ Click on the system menu button.

or

➢ Click into the main window with the left mouse button.

↳ The system menu is closed.

10.2.1.1 Saving a stack

In this dialog, you can save the actual stack.

➢ Select *"Save"* in the system menu.

↳ The current processing status of the stack is saved.

10.2.1.2 Importing a stack

✓ The BLC file (block file) is stored on the inLab 4 PC or on a storage medium connected to it.

1. Click the *"Import Stack"* button in the system menu.

   ↳ The dialog window for file import opens.

2. Select the folder where the stack is located.
3. Select the relevant file.
4. Click the *"Open"* button

↳ The stack is now imported and opened.

10.2.1.3 Exporting a stack

You can store a stack in any location.

✓ You have opened a stack in the software.

1. Click the *"Export Stack"* button in the system menu.
   ↳ The dialog window for file export opens.
2. Select the target folder to which you want to export the case.
3. Assign any name to the stack.
4. Click on the *"Save"* button.

↳ The stack is exported as a BLC file.

If you would like to transfer the stack to another PC, you can use a USB stick or a network drive for this purpose.

10.2.1.4 Importing an element

✓ A stack is open.

✓ The CAM file of a restoration is stored on the inLab 4 PC or on a storage medium connected to it.

1. Click the *"Import Element"* button in the system menu.
   ↳ The dialog window for file import opens.
2. Select the folder where the restoration is located.
3. Select the relevant file.
4. Click the *"Open"* button

↳ The restoration is then imported and added.

10.2.1.5 Exporting an element

You can store a restoration in any location.

✓ You have opened a stack in the software.

1. Click the *"Export Element"* button in the system menu.
   ↳ The dialog window for file export opens.
2. Select the target folder to which you want to export the restoration.
3. Assign any name to the restoration.
4. Click on the *"Save"* button.

↳ The restoration is exported as a CAM file.

If you would like to transfer the restoration to another PC, you can use a USB stick or a network drive for this purpose.

10.2.1.6 License manager

The license manager is used for the installation of new software licenses on the USB license stick. To do this, start the license manager via the system menu and follow the instructions on the screen. Keep the license certificate with 25-digit license key ready, which you either obtained with the unit or ordered separately from your dealer.

Tip: You can also start the license manager via "Start / All Programs / Sirona Dental Systems / inLab / Tools / License Manager".

To activate the license you must have an Internet connection and the USB license stick must be connected.

Licenses and code libraries

For information on licenses and code libraries from third parties, see licenses.pdf. The file is in the installation directory under "C:/Programs/Sirona Dental Systems/CADCAM".

10.2.1.7 Configuration

The configuration is described in the chapter "Configuration [→ 144]".

10.2.1.8 Window mode

The *"Window Mode"* function can be used to exit full-screen mode or enter it again.

10.2.1.9 Current program version

The *"About"* function contains information about the current program version.

10.2.1.10 Closing the software

The *"Exit"* function can be used to close the software.

10.2.2 Phase bar

The workflow is illustrated in the software in 3 phases.

	COLLECT
	STACK
	MILL

10.2.3 Start window

In the start window, you can perform the following:

- Creating new stacks
- Opening stacks
- Deleting stacks

Switching to the start view

You can switch to the start view at any time.

1. Open the system menu.
2. Click on the *"Start Screen"* button.

10.2.3.1 Creating a new stack

1. Click on the step *"New Stack"*.
   ↳ You will be prompted to provide details.
2. Change the name and date if necessary.
3. Click on the *"Ok"* button.
   ↳ The program switches over to the *"COLLECT"* phase.

10.2.3.2 Opening a stack

✓ You have found the stack in the overview.

1. Click on the stack.
2. Click on the *"Open Stack"* step in the step menu.
   ↳ The stack opens.

10.2.3.3 Removing a stack

✓ You have found the stack in the overview.

1. Click on the stack.
2. Click on the *"Delete Stack"* step in the step menu.
3. Confirm the deletion by clicking the *"Ok"* button.
   ↳ The stack is deleted.

10.2.4 Step menu

Each phase is divided into steps. They are shown in the step menu at the bottom edge of the screen. The step menu changes depending on which phase the current restoration is in.

This menu guides you through the process step-by-step.

Mandatory steps

Mandatory steps are marked with a red or green bar.

Red bar:	The step has not yet been completed successfully.
Green bar:	The step has been completed successfully.

10.3 Configuration

The *"Configuration"* menu contains five sub-menus:

- Parameters
- Devices
- Options
- Settings
- Apps

10.3.1 Parameters

In the *"Parameters"* menu, you can adapt the presettings for the milling process.

The changes in the values are displayed graphically.

Parameters	Description	Default value
Horizontal Connector	• Additionally generates a horizontal connection • Can be switched on and off	NO
Connector Cross Section	• Sets the diameter of the connector	3.0 mm
Restoration Distance	• Sets the horizontal distance of the restorations from each other	1.2 mm

Accepting settings

➢ Click on the *"Ok"* button.

Discarding settings

➢ Click on the *"Cancel"* button.

Resetting settings

➢ Click on the *"Reset All Group Parameter"* button.

↳ The settings for this restoration type are reset to the factory settings.

10.3.2 Model parameters

Pin diameter:

Here you can change the diameter of pin holes in the model.

Pin length

You can use this value to determine the depth of the pin hole in the model segment.

IMPORTANT
Do not change this length if you want to order SLA models from infiniDent.

10.3.3 Devices

All connected devices can be displayed and configured under the menu item *"Devices"*.

A green check mark on a device indicates its availability.

Adding devices automatically

You can add additional devices with the *"Scan for New Devices"* function.

✓ The device is attached to the PC.

1. Click on the *"Scan for New Devices"* button.
   ↳ All devices attached to the PC are detected. You will be prompted to enter a name for new devices.
2. Enter a name for the new device.

Adding devices (manually)

You can manually add devices with the *"Add Device (Manual)"* function. This is mandatory for devices which cannot be operated at the maximum speed of 115,200 baud. This applies to devices with long cable connections or certain radio modules (e.g. Futaba, 19200 baud).

1. Click on the *"Add Device (Manual)"* button.
2. Select whether the device is connected to the network or in series.
3. Network: Enter the network address.
   In series: Enter the COM port and the baud rate.
4. Click on the *"Ok"* button.
   ↳ The software attempts to contact the device.

If the connection fails, check that it is correctly established. If necessary, contact a qualified technician.

Refresh status

With the *"Refresh Devices"* button, you can

- refresh the status display, e.g. check whether a milling unit has finished milling or
- check the current availability of a device.

10.3.4 Options

The menu item *"Options"* has the following subitems:

- Select odontogram
- Reset notes
- Legend proof
- Display legend
- Generate name automatically
- Calculate stacks automatically

10.3.4.1 Odontogram

You can set the odontogram using *"ADA/FDI Notation"*:

- International (*"FDI Notation"*)
- USA (*"ADA Notation"*)

10.3.4.2 Reset notes

Here, all warnings can be displayed again.

Setting	Description
YES	Displays all the deactivated warnings in the workflow again.
NO	Warnings which were previously hidden, remain hidden.

10.3.4.3 Legend proof

Here you can select whether a legend will be generated. This option can be used to output a legend of the restorations with the respective order information.

Setting	Description
YES	A legend will be generated.
NO	No legend will be generated.

10.3.4.4 Display legend

Here you can select whether a legend will be displayed following the milling process.

Setting	Description
YES	A legend will be displayed.
NO	No legend will be displayed.

10.3.4.5 Generate name automatically

Here you can select whether a stack name will be generated automatically.

10.3.4.6 Calculate stacks automatically

Here you can select whether a stack name will be generated automatically.

Setting	Description
YES	The stacks are automatically inserted in the block following the change to the STACK phase.
NO	The stacks must be inserted in the block manually in the Stack Elements step.

10.4 Edit orders

The Shortcut keys [→ 134] chapter describes how the following tools and options can be called using shortcut keys.

10.4.1 COLLECT phase

✓ You have created a new stack.

1. The step *"Select material"* is active.
2. Select the material for the restorations.

3. Change to step *"Select block"*.
4. Select the block size.

5. Change to step *"Collect"*.
   ↳ All available restorations are displayed.
   Tip: If a restoration is not available, import the CAM files (see Importing an element [→ 141]).
6. Select the restorations to be generated in the stack.
   To do this, click on the plus sign behind the restoration.
   You can remove restorations again by clicking on the minus sign.

10.4.2 STACK phase

1. Click on the *"STACK"* phase, and you will return to the *"Stack Design Model Parameter"* step.
2. Set the Pin diameter and the Pin clearance.
3. Change to step *"Stack Elements"*.
4. Insert the restorations in the block by clicking on the plus sign behind each restoration.
   Tip: You also can place restorations repeatedly.
   ↳ The restorations are inserted in the block and positioned.
5. You can remove restorations again by clicking on the minus sign.

The block length required to prepare this stack is displayed in the table header.

10.4.3 MILL phase

1. Click on the *"MILL"* phase.
2. Select a milling unit.

3. Change to step *"Show Legend"*.
   ↳ The legend is then displayed. You can either print or save it.

4. Change to step *"Start Milling"*.
   ↳ The milling process begins.

11 Sirona Connect portal

11.1 Starting the Sirona Connect portal

✓ The start screen is active.

➢ Click the *"CEREC Connect Portal"* button on the step by step menu.

↳ The login window is displayed.

11.2 Log in to the portal

1. Enter user name and password.
2. Activate the relevant option if you want to save the user name and password.
3. In the step menu, click on *"Ok"*.

↳ The data are uploaded in parallel to the information being entered in the portal.

11.3 Order list

You can filter the orders by the various statuses via the filter below the list.

In order to view the order details you must click the relevant order in the list so that it is highlighted in orange. Then you can view the details by clicking on *"View Order"* in the step menu.

11.4 Restoration data

Cases with several restorations are always fully displayed and downloaded.

Data on individual restorations is shown to the left of the overview display. The active restoration is colored orange in the overview and is displayed in white in the model.

Now click *"Order Data"* to proceed to the next step.

11.5 Order information

The delivery date, potential delivery time, and dentist placing the order are displayed here.

Now click *"Additional Instructions"* to proceed to the next step.

11.6 Additional information

In this step you can find information on the patient's sex, age, and type of insurance cover (applies only to Germany).

The dentist can enter additional information in *"Additional Instructions"*, in the form of flowing text.

The *"Additional Files"* function can be used to download the additional data (e.g. photos) that the dentist has attached. To do so, click the file and save it accordingly.

Now click *"View Work Ticket"* to proceed to the next step.

11.7 Displaying the order sheet

In this step, the order sheet is displayed and saved.

Click the printer icon to print the order sheet.

To zoom in and out of the order sheet display, you can click the corresponding magnifying glass icon.

The icon underneath the magnifying glass can be used to scale the order sheet to the window size.

Now click *"Check Model"* to proceed to the next step.

11.8 Checking the model

In this step, the model is downloaded to the software for checking.

Analysis tools

Using the *"Analyzing Tools"*, you can display the model contacts or hide the model box.

Display objects

Using *"Display Objects"*, you can display the individual image fields.

Using *"Display Objects"*, you can also check additional image data that the dentist may have recorded (e.g. *"BioCopy Lower"*) by clicking on the corresponding buttons.

The transparency of the image fields can be minutely adjusted using the button for each image field. To do so, hold the button down with the left mouse button and move the mouse up or down.

Now click *"Accept"* to proceed to the next step.

11.9 Accepting/rejecting an order

In this step, you can reject or accept the order.

The restoration data is shown to the left of the overview display and to the top right, the dentist placing the order.

Using *"My comments"*, you can send the dentist a message.

In the step by step menu, you can click on *"Yes"* to accept the order or *"No"* to reject it. The dentist receives a confirmation email which also includes your comments.

Then the order list reappears automatically.

11.10 Order list appears automatically

In this step, you can either examine the next order or download the model for construction to the inLab software, using the *"Load Order"* button.

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We reserve the right to make any alterations which may be required due to technical improvements.

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